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TYPES OF HUMAN DIABETES*

BY

R. D. LAWRENCE, M.D., F.R.C.P.

Physician-in-Charge, Diabetic Department, King's College Hospital

The twin sisters clinical observation and laboratory experiment have walked, in the field of diabetes, very closely hand in hand. Sometimes one has led, sometimes the other. But whichever led, the second soon proceeded to further progress, to their mutual benefit and stimulation. We clinicians must gratefully acknowledge that the experimental side has far outstripped ours in the last 15 years, and the animal investigations of Houssay, Young, and others have clearly shown the importance of pituitary and adrenal hormones in the regulation of carbohydrate metabolism and the production of diabetes. This confirms our suspicions that the term "diabetes mellitus" includes a variety of glycosuric conditions separate both in clinical type and in aetiology. I shall try to subdivide these.

The Greeks described the syndrome of "diabetes" as "a melting of flesh into water"; a sweet honeyed substance, "mellitus," was shown to be present by Willis in England in 1672; the more precise measurements of modern science have shown a fundamental hyperglycaemia as well as glycosuria and a frequent ketonuria in relation to the classical syndrome of thirst, polyuria, loss of weight, and erstwhile resultant coma. But I should point out that many diabetics never develop ketosis and that many of these remain obese, and it is largely on these two features that I shall attempt to differentiate clinical types. More fundamentally I suggest that diabetics can be divided into those who probably are not insulin-deficient and others who certainly are. I have coined words to categorize some types with clarity. These words have also, I believe, a sound Greek origin.

Methods of Experimental Diabetes

Before passing to man and to the consideration of clinical types, I think it useful to summarize the various experimental procedures which have been proved to produce true severe diabetes or merely glycosuria and mild disturbances of carbohydrate metabolism in animals. In the Table these are arranged mainly in historical order, and need not be explained in detail. Nos. 6, 7, and 8, though causing glycosuria, hardly merit inclusion as diabetes. It is obvious that all clear-cut patterns of experimental diabetes (I to IV) arise from total destruction of the pancreas or specific damage to the islet, resulting in insulin deficiency.

Experimental "Diabetes"

Produced by	Mode of Action
I. Pancreatectomy	Islet lack
II. Anterior pituitary extracts (Young):	
(*a*) Young's = growth hormone	Islet destruction
(*b*) A.C.T.H.	Through cortisone
III. Alloxan	Islet destruction
IV. Glucose injections	Islet destruction
V. Suprarenal:	
(*a*) Cortisone	?
(*b*) Adrenaline hyperglycaemia	Glycogenolysis
6. Thyrogenic hyperglycaemia	Glycogenolysis
7. Claude Bernard's puncture	? Hypothalamic; brief glycogenolysis
8. Phloridzin "diabetes"	Low renal threshold

Types of Human Diabetes

The vast majority of human diabetics—and these interest me most—show no clear aetiological analogy to the above experimental forms. But certain rare cases are clearly due to primary pancreatic disease which destroys insulin production, and to other endocrine factors which induce a diabetic state. I shall enumerate these briefly before passing to the commoner types.

Primary Pancreatic Destruction.—(*a*) Total surgical pancreatectomy for widespread carcinoma or hyperinsulinism; (*b*) calculus disease and chronic relapsing diabetes; (*c*) haemochromatosis (these three forms are severely insulin-deficient); and (*d*) chronic fibrosis, often with steatorrhoea, in which the diabetes is mostly mild, but sometimes needs insulin.

Primary Disturbance of Other Endocrines.—(*a*) Pituitary: (1) Acromegaly; severe diabetes. (2) Cushing's basophilism; milder. (*b*) Adrenal disease: (1) Phaeochromatoma; variable severity. (2) Basophilism; variable severity. (*c*) Thyrogenic diabetes (?).

With Disturbances of Fat Storage.—There are two clinical conditions in which diabetes is most clearly associated with a lack or an excess of depot fat: they have no analogies in animal or experimental work. For these conditions I have coined the words "lipoatrophic" and "lipoplethoric" diabetes respectively.

Lipoatrophic Diabetes

This is, I think, a suitable term for an extremely rare condition, a case of which, after seven years' study, I published in detail (Lawrence, 1946) and shall summarize

*With acknowledgment to the Royal Society of Medicine for permission to publish this abridged version of a presidential address delivered to the Section of Endocrinology on October 18, 1950.

FIG. 1.—Case of lipoatrophic diabetes. Reproduced from the *Lancet*, 1946, 1, 724.

here, as it is essential to my argument and speculations. I would point out that this condition has nothing in common with the frequent type of severe wasting diabetes, later described, in which fat stores are quickly replenished by insulin treatment.

Fig. 1 shows this woman aged 30 (normally adipose four years before) with no fat four years after the onset of "diabetes." Post-mortem examination showed no depot fat, perirenal or elsewhere, an enormous portally cirrhosed liver, a huge spleen, but a completely normal histological picture in all endocrine glands, including the pancreas.

Metabolic studies revealed an extraordinary condition. A high blood and urinary sugar, requiring 2,000 units daily for control, was never accompanied by ketosis even when insulin was reduced or omitted. But all phases of hyperglycaemia produced an intense lipaemia, 4 to 8%, quite independent of various levels of dietary fat and carbohydrate. This lipaemia repeatedly disappeared when hyperglycaemia was controlled by vast doses of insulin (1,600 to 2,000 units daily), but there was no appreciable change in subcutaneous fat.

Two similar published cases (Hansen and McQuarrie, 1940; Ziegler, 1928)—one of which is illustrated in Fig. 2—show that the extraordinary lipoatrophic case I have described has a metabolic lesson—namely, that "diabetes" can result when fat cannot be stored. Its meaning is discussed in relation to the contrast of the next type.

FIG. 2.—Hansen and McQuarrie's case. Reproduced from *Proc. Soc. exp. Biol., N.Y.*, 1940, 44, 611.

Lipoplethoric Diabetes

This again, I think, is a suitable term to describe the contrast in excessive fat storage which is associated with the commonest type of diabetic patients who crowd our clinics and practices—middle-aged obese men, and particularly women at or soon after the menopause (Fig. 3). Female diabetics of this type now exceed the males by 2 to 1 among all civilized and well-nourished peoples. This sex distribution is quite different from that in England at the beginning of this century, when male diabetics of all types exceeded the females. I cannot believe that inborn genetic factors have changed in the last 25 years, and would ascribe the vast increase in obese female diabetics to a relative abundance of food. Long ago the altruistic working-class woman was relatively starved. Now she has an abundance of bread, potatoes, and other foods, so she gets fat and develops this type of diabetes. Perhaps this is too simple an explanation, but it is supported by the virtual disappearance of lipoplethoric diabetes in starved Germany in 1917–18 and its occurrence in Bengal only among those who are rich enough to get fat. At any rate, large numbers of these obese diabetics present with some thirst, with pruritus, with hyperglycaemia and intense glycosuria, but with *no ketosis*. When treated with diets low in carbohydrate and low caloric values in protein and fat to reduce their weight substantially, the diabetes practically disappears, and even the glucose-tolerance test may become normal. A relapse occurs when dieting is relaxed sufficiently for weight to be regained, but is readily overcome by further restriction. I think it bad treatment to prescribe insulin and liberal diets in such cases, as this prevents the reduction in weight which I consider essential. Such cases are relatively insensitive to insulin.

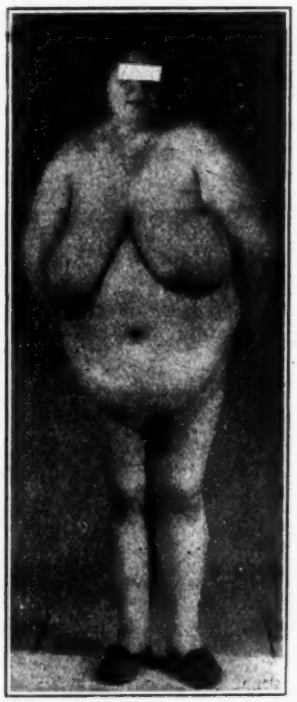

FIG. 3.—Case of lipoplethoric diabetes.

A likely explanation of these two types of diabetes, in which a similar state of hyperglycaemia without ketosis is associated with opposite states of fat storage, can be based on tracer experiments which show what the end-action of insulin on carbohydrate is in relation to fat storage. Insulin turns labelled glucose not only into glycogen but, almost equally rapidly, into stored fat. Indeed, acting on a large meal, insulin is quantitatively more lipogenic than glycogenic. The lipoatrophic subject cannot store fat, and therefore cannot store ingested sugar, which circulates in excess. Perhaps the overfull stores of the lipoplethoric patient prevent the easy storage of sugar, though this latter explanation may be too facile. In any case, I suggest that these types of diabetes are due not to insulin deficiency but to lack of an unknown hormone and/or enzyme system concerned with the regulation of storage of fat. I have elsewhere called this the "lipopexic" factor, but the contrasting conditions might equally well depend on an excess or a deficiency of a thinning or "lipocatabolic" factor. Such speculations have no substantial evidence to support them, and certainly they have no experimental foundation. But perhaps, in this field, clinical observation may lead to a later experimental approach.

Insulin-deficient Diabetes

This well-known severe type presents the most difficult problems for the clinician both in its treatment and in the obscurity of its aetiological factors. In contrast to previous types, the characteristic feature is the *ketosis* which accompanies the hyperglycaemia and which, in

the absence of insulin treatment, leads to coma. Ketosis occurs whenever little or no carbohydrate is available for use and the body has to metabolize fat instead, and in diabetes it is a direct indication that there is little or no insulin production to make the excess sugar available.

All diabetic children, and most adults under 40 and many over 70, are of this type, whereas lipoplethoric diabetes predominates between the ages of 45 and 60. They need insulin treatment badly, are sensitive to it, and owe their lives to its continuous use.

Sometimes the disease is controlled at first by quite small doses of insulin—indeed, it may be given up for a time—but as months and years go on the majority become stabilized at insulin requirements of some 35 to 60 units a day. This requirement remains fairly constant, though at different levels in different patients, except when complicating conditions or illnesses occur. For years I have regarded the state as one of *absolute diabetes* in which the islets are producing no appreciable insulin; but this has not been proved. They certainly behave as if they secrete no endogenous insulin. Immediately the activity of an injection is exhausted hyperglycaemia and ketosis resurge even more quickly than the next dose of insulin removes them.

There are difficulties in the treatment of these insulin-deficient subjects, because no type of injected insulin can imitate or produce the physiological pattern of normal carbohydrate metabolism. Many are unstable for social reasons, but all uncomplicated cases should, and most do, achieve a normal life of work and play for many years if they receive suitable treatment.

Because this severe type seems ultimately to be due to insulin deficiency, it does not follow that the primary cause is an inherent pancreatic weakness. An important factor in islet destruction is a continuous hyperglycaemia, and experiment has shown that if this is maintained it can destroy the islets of healthy cats. If it is prevented by insulin or low carbohydrate diets, the diabetogenic pituitary factor of Young does not produce the usual diabetes. The early studies of Allen on dogs and human diabetics also showed that if hyperglycaemia could be prevented by diet the progress of the disease would be stayed or minimized; and widespread clinical experience, including my own, supports this. Continuous hyperglycaemia seems essential in the production of severe grades of islet destruction. But we know from experimental work that hyperglycaemia can be initiated by extrapancreatic hormonal factors, and human diabetes may well begin in the same manner. At the moment the pituitary and the hypothalamus are the most fashionable hypothetical factors. There is, however, no factual evidence to support this theory, and I would point out that cases of insulin-deficient diabetes occur in all types and races and show no clear signs, either physical or mental, of any other endocrine dysfunction. The mystery of their origin is still profound.

Nor does consideration of the undoubted hereditary factor in diabetes help to clarify the aetiological puzzle, and the nature of transmission, recessive or more complicated, remains obscure. But Harris's (1949, 1950) analysis of over a thousand cases from King's College Hospital at least suggests that the lipoplethoric and the insulin-deficient type tend to run separately in families and may be due to separate genetic influences.

Vascular Complications of Diabetes

One thing that is common to all types of diabetes is the tendency of long-standing cases to develop similar vascular complications—retinopathy, albuminuria, renal sclerosis, and undue occlusion of vessels in the feet (gangrene) and in the coronary and cerebral systems. Twenty years ago I taught students that only the long-standing lipoplethoric type developed these complications, but insulin has kept other types alive long enough for them also to develop the same disastrous complications. These have been observed in diabetes due to haemochromatosis and to relapsing pancreatitis, and the lipoatrophic case described above showed, after eight years, typical commencing intercapillary changes in the kidney glomeruli. Is this an indication that hyperglycaemia, apart from type and nutritional state, is the prime factor causing these vascular changes?

Further Investigations

I have described different types of human diabetes on grounds of clinical experience and observation, but I know that my speculation on their aetiology rests on no very sound basis. Further investigations are required in two directions which are very difficult in human diabetes: first, the histology of the islet cells and the insulin content of the pancreas of these types should be compared in very fresh post-mortem material; and, secondly, the difficult estimation of blood insulin in various types would give the clearest answer, and seems to be near realization. The method of Bornstein (1950) with hypophysectomized, adrenalectomized alloxan-diabetic rats appears to be the most promising.

And so, in the near future, the different types I have described may be put on a firm basis of experimental proof. I may be shown to be partially right or entirely wrong, but this hardly matters if I have been able to give a stimulus to present thought and future knowledge.

Summary

Human diabetics are divided clinically into two main types: (1) those who probably are not insulin-deficient, and (2) those who certainly are.

The former type, again, is divided into two, depending on the absence or excess of fat stores, and the new words lipoatrophic and lipoplethoric diabetes have been coined to describe them.

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In his annual report for 1949, Dr. C. Fraser Brockington, county medical officer of the West Riding of Yorkshire, estimates that the cost of treating patients with diphtheria in the West Riding is now £75,000 less each year than it was between 1935 and 1939. Over and above this there is a saving represented by the nurses and domestic workers previously needed for the 256 beds which are no longer occupied: this is estimated to be £53,600 per year. According to the estimates of the cash value of a human life made by economists and actuaries, the estimated value of the lives saved is about £43,000 a year. The total annual saving, therefore, amounts to £172,000 a year. Against this is the cost of diphtheria immunization—about £10,000 a year. "The monetary saving of this single operation in preventive medicine therefore exceeds by £10,000 the estimated cost for 1950–1 of the whole of the health-visiting service (in the West Riding)."

CONSTITUTION AND INSULIN SENSITIVITY IN DIABETES MELLITUS

BY

JOHN LISTER, M.B., B.Chir., M.R.C.P.
Senior Medical Registrar, Royal Free Hospital

JOHN NASH, M.Sc., M.D., M.R.C.P.
Senior Medical Registrar, Royal Free Hospital

AND

UNA LEDINGHAM, M.D., F.R.C.P.
Physician, Royal Free Hospital

It has long been recognized that there are several clinical types of diabetes mellitus. In particular, Falta and Boller (1931), Falta (1936), Himsworth and Kerr (1939), and Himsworth (1949), and others have described two broad groups of diabetics—the young, thin, non-arteriosclerotic group with normal blood pressure and usually an acute onset to the disease, and the older, obese, arteriosclerotic group with hypertension and usually a gradual onset.

Clinically, the patients in the first group are rapidly responsive to insulin and are subject to both hypoglycaemia and ketosis, whereas the patients of the second group are clinically less responsive to insulin and are much less liable to either of these complications. This difference was more clearly defined when Himsworth (1936) devised his insulin sensitivity test and found that in general the first group of patients showed a sensitive response to that test, whereas those in the second group tended to be insensitive, although exceptions were encountered in both groups. Furthermore, he found that the patients tended to be either clearly sensitive or clearly insensitive in their response.

He considered that this difference could be explained by differing aetiologies of the diabetic state, the first group being due solely to insulin deficiency, whereas in the second group there is rather an insensitivity to the action of insulin.

From clinical observations of the response of patients to insulin therapy and from the results of insulin sensitivity tests it is clear that patients differ widely in their reaction to insulin, but it is our impression that the most important determining factor in insulin sensitivity is neither age nor weight, but rather the constitutional make-up of the patient, and that in particular there is a group of patients of characteristic physique who are almost uniformly insensitive in their response to insulin. The clinical features of these patients have been noted for many years by one of us (U. L.) and are described below.

Clinical Features

The skull tends to be small and the bones are generally slender with tapering extremities. The features are also small and characteristically neat and centrally placed. Thus the palpebral fissure appears too small for the eyeball, the nose is small and straight, there is a short upper lip, and the mouth is often of the "Cupid's bow" formation. These features together tend to give the patient a doll-like appearance.

The jaw-line is ill defined, partly owing to the small, slender mandible and partly to the tendency to plumpness in this situation. The teeth are large, white, even, and often widely spaced, and when patients have lost their teeth inquiry supports these facts. The skin is fine and soft and unusually resistant to normal wear and tear, so that even working-class women preserve this characteristic. The nails are well shaped, long, and of good texture, usually displaying well-marked moons. Naturally these features are better displayed in young patients. The hair is fine and silky, with a hair line usually placed low and dipping over the temples, and patients report that it is easy to keep in place.

Obesity is a frequent finding, and is of girdle distribution. In the upper girdle the fat is deposited over the back of the shoulders, on the upper arms, and about the breasts. In the lower girdle it is deposited around the abdomen, the buttocks, and the thighs. The waistline is preserved as a boundary between the two girdles, the extremities are spared, and the furrow over the vertebral column is usually apparent. On inquiry it is clear that weight is gained to an unusual degree during or after pregnancy, and a sudden increase in weight occasionally coincides with adolescence or marriage, suggesting an apparent correlation between weight gain and times of unusual hormonal activity. It is important, however, to stress that frank obesity is not necessary for the recognition of this constitutional variation.

The menstrual pattern is often unusual. Two chief types of variation are met with. Either catamenia is early, with a tendency to heavy periods and at least normal fertility, or, as often, it is delayed, the periods are infrequent and scanty, and the women are subfertile. Finally, on detailed inquiry it is found in nearly every case that a patient with these features strongly resembles one or other parent or near relation, and that this person is reported to be obese, or diabetic, or both.

In addition to these basic characteristics, many of the patients have one or more of the findings usually associated with Cushing's syndrome, so that plethora, hirsuties, striae, and acne are not uncommon additional features. We have examined closely all patients attending the clinic to see whether those whose appearance falls outside this category have any features in common. We failed to find any such features, and we have accordingly divided our cases into those with an unremarkable constitution and those showing the characteristics described above. These types we have provisionally designated type I and type II, respectively.

Present Investigation

Having in mind the work of Himsworth (1936) on insulin sensitivity, we decided to apply his test to an unselected group of patients in our clinic so as to observe whether any correlation exists between the patients clinically and their sensitivity to insulin.

We have investigated 100 patients attending the Royal Free Hospital Diabetic Clinic with a distribution of age of onset as shown in Table I: 49 as in-patients; 47 as out-patients; and four who were investigated twice—once as in-patients and once as out-patients.

TABLE I.—*Cases Investigated*

Age at Onset	Male	Female	Total
1–30	2	16	18
31–40	4	14	18
41–50	6	19	25
51–60	4	25	29
Over 60	4	6	10
	20	80	100

These cases represent a random sample of the patients attending the clinic, the only factor in their selection being their willingness to co-operate. The high proportion of women must be attributed to the fact that until recently the Royal Free Hospital has been a women's training school, thus attracting a preponderance of women patients. In all other respects the numbers investigated in the various age groups correspond closely with the normal distribution of diabetics, the maximum incidence of onset being in the decade 51 to 60.

A subsidiary object of the investigation has been to see whether or not the test would have a place as a routine investigation in diabetics. We have accordingly applied the test with the minimum of inconvenience to the patient and with as little interference with stabilization as possible, and in two respects we have had to differ from Himsworth in the preparation of the patient. First, we have not omitted the protamine-zinc insulin on the day before the test, but we have examined our results and find no evidence that the protamine-zinc insulin given approximately 26 hours previously has affected our figures. Secondly, about half our cases have been investigated as out-patients. Conditions as near to basal as possible have been obtained by resting the patient in the laboratory for half an hour before the test, and, since estimations of basal metabolism are carried out under similar conditions without significant variation, we feel that this does not invalidate our results.

The method of blood-sugar estimation which we have used is that described by Lauber and Mattice (1944), which gives a true value for the level of glucose in the blood (average mean deviation is 3 mg. per 100 ml.).

Distribution of Insulin Sensitivity

In considering our findings we have first examined the insulin sensitivity of the patients throughout the whole group. Fig. 1 shows the frequency distribution

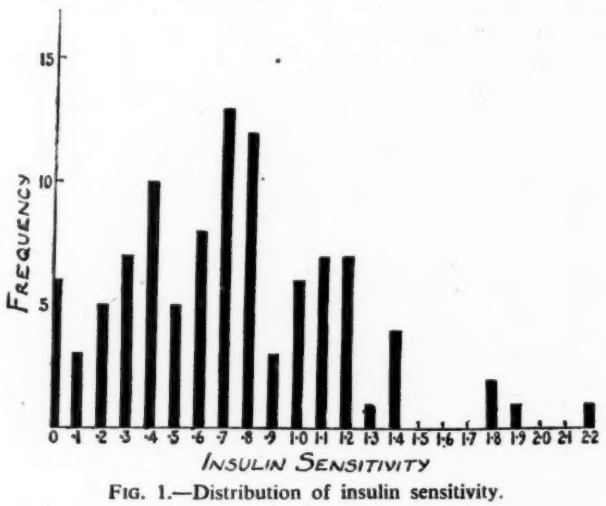

FIG. 1.—Distribution of insulin sensitivity.

in ranges of insulin sensitivity of 0.1. It is seen that in our series the sensitivity ranges from zero to just over 2, the main peak being situated between 0.6 and 0.8 and the mean insulin sensitivity for the whole group being 0.65. Of the cases 23% have a sensitivity of over 1 and 14% have a sensitivity of less than 0.25. Furthermore, it is noteworthy that at a point near where Himsworth found a gap in his series (betwen 0.7 and 0.9) our distribution falls below the expected normal (at 0.9), although there is no absolute gap such as he found.

Age of Onset and Insulin Sensitivity

Next we considered the possible effect of age of onset on insulin sensitivity. In general there is a tendency for insulin sensitivity to fall with age of onset, though exceptions are to be found in most age groups. Thus some cases in which the disease has started at an early age have given an insensitive response, whereas a number of cases of later onset have a sensitivity well above the average for the group. Nevertheless the average sensitivity below the age of 40 is above the mean for the group (0.65), whereas after this age it is a little below the mean. Fig. 2 shows the average insulin sensitivity

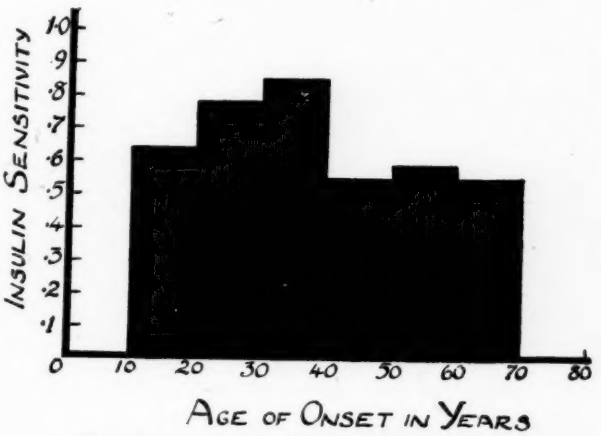

FIG. 2.—Average insulin sensitivity per decade.

per decade of age of onset. Any conclusions from these observations, however, must be modified by our examination of the relationship of insulin sensitivity to weight, and it must be remembered that there is often a tendency for weight to increase with advancing age.

Weight and Insulin Sensitivity

In our investigation of the relationship of insulin sensitivity to weight we have taken as our index of obesity the ratio of the weight in pounds to the height

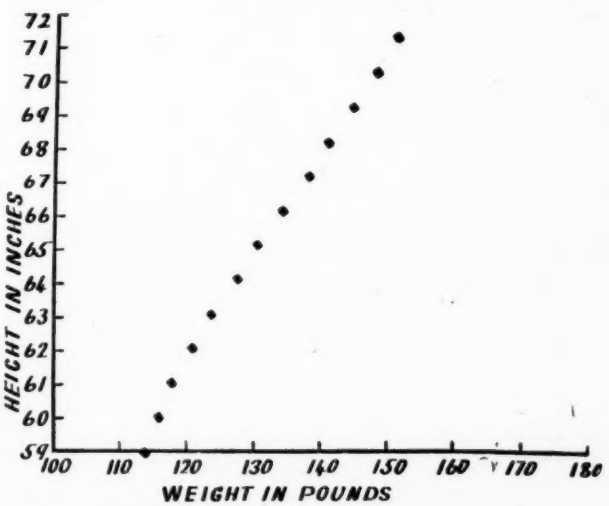

FIG. 3.—Weight/height ratio in normal women over 25 years.

in inches. Fig. 3 shows the relationship of weight to height in normal women over 25 years of age. It was plotted from figures given by the Metropolitan Life Insurance Company, quoted by Stieglitz (1949), relating

to people of normal longevity, and it can be seen that the relationship of weight to height is an almost constant one, the weight/height ratio at any point on the curve being approximately 2.1. This authority claims that in normal people of over 25 the ratio has been found to be independent of age.

Fig. 4 illustrates the relationship of insulin sensitivity

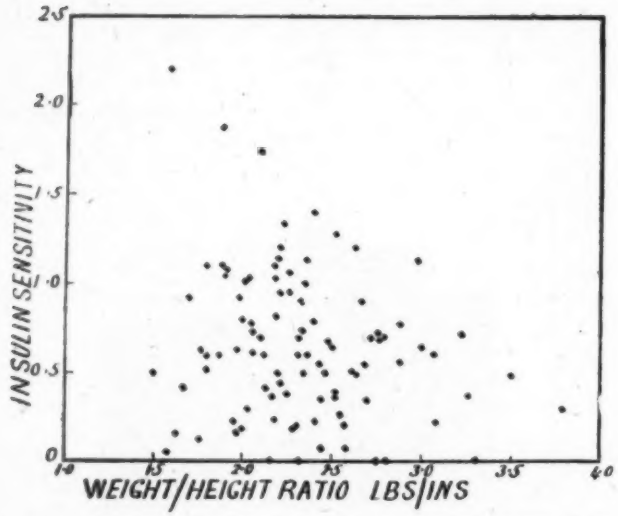

FIG. 4.—Relationship of insulin sensitivity to weight/height ratio.

to weight/height ratio in the group as a whole. From this it is clear that a large proportion of the patients have a weight/height ratio over the normal figure of 2.1. Furthermore, it shows an apparent inverse relationship of insulin sensitivity to weight/height ratio. This is even more striking when the average insulin sensitivity for short ranges of weight/height ratio is plotted against the weight/height ratio (Fig. 5).

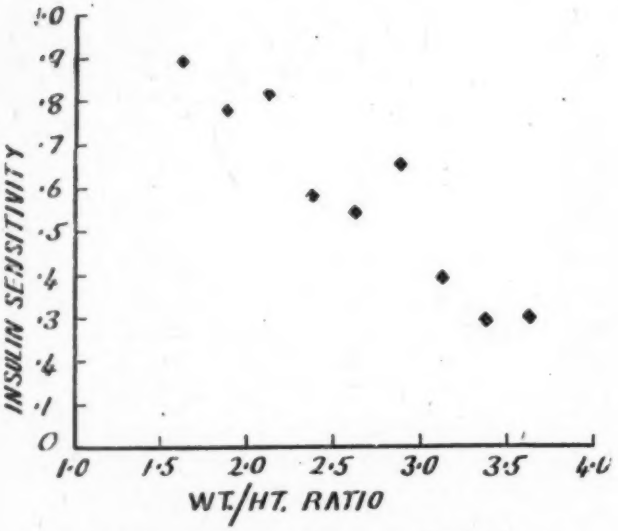

FIG. 5.—Average insulin sensitivity to weight/height ratio.

Owing to the wide scatter in Fig. 4 it may be unjustifiable to average the sensitivity in this way, and the absence of the normal scatter of a linear correlation could be due to the presence of two populations behaving differently in regard to insulin sensitivity. It appeared, therefore, that the patients studied could be divided into two groups.

In order to ascertain whether there is any correlation between insulin sensitivity and clinical characteristics we divided our patients at this stage into the two constitutional types already described. It was found that 38 of the patients were type I, 37 were type II, 20 we were unable to classify, and 5 could not be used owing to incomplete data. Many of the twenty unclassified cases had some of the features of type II but not in sufficiently marked degree to place them definitely in the group. Two of us typed the patients independently, arriving at almost identical conclusions.

TABLE II.—*Type I (Unremarkable Constitution)*

Case No.	Sex	Age	Age at Onset	Height in In.	Weight in lb.	W/H Ratio	Insulin Sensitivity
6	M	56	47	65	147	2·36	1·07
17	F	22	19	61	110	1·80	1·10
60	M	21	9	70	140	2·00	0·80
80	F	28	26	63	120	1·91	1·08
16	F	26	25	66	125	1·89	1·10
65	F	40	29	63	103	1·62	0·16
26	M	29	28	67	140	2·09	1·74
75	F	24	22	62	126	2·03	1·02
95	F	18	15	62	100	2·10	0·51
94	F	54	36	60	108	1·80	0·52
30	M	37	36	70	117	1·67	0·42
68	F	57	33	63	151	2·40	1·40
47	F	48	38	62	123	1·69	0·92
15	F	41	36	68	115	1·69	0·55
22	F	54	36	63	115	2·18	1·60
90	F	49	39	61	146	2·40	0·79
44	F	40	39	66	133	2·02	1·02
57	M	50	34	72	192	2·67	0·90
85	F	46	45	66	140	2·12	0·60
12	F	52	44	62	134	2·16	0·70
71	F	66	50	62	121	1·95	0·23
39	F	64	50	61	140	2·30	0·20
27	M	46	46	67	114	1·70	0·92
100	F	54	51	56	115	2·05	0·61
48	F	53	52	66	166	2·52	1·28
38	F	60	58	72	162	2·25	0·38
23	F	68	60	62	126	2·03	0·30
70	F	60	58	58	131	2·26	0·95
53	F	63	59	61	142	2·33	0·74
20	F	70	54	62	124	2·00	0·19
64	M	58	56	69	124	1·80	0·60
74	F	68	60	61	135	2·21	0·95
108	F	54	53	60	90	1·50	0·50
56	F	65	35	62	109	1·76	0·13
110	F	73	73	61	125	2·05	0·78
27	M	62	53	67	126	1·88	1·88
24	F	66	65	67	143	2·13	0·41
19	F	42	39	60	106	1·77	0·63

TABLE III.—*Type II (Characteristic Constitution)*

Case No.	Sex	Age	Age at Onset	Height in In.	Weight in lb.	W/H Ratio	Insulin Sensitivity
69	F	61	30	57	131	2·30	0·21
45	F	25	14	60	112	1·81	0·60
92	F	34	26	61	128	2·10	0·70
1	F	18	15½	65	151	2·30	0·32
97	F	19	16	59	145	2·46	0·50
83	M	41	34	64	196	3·07	0·61
107	F	49	40	62	143	2·31	0·60
50	F	35	33	63	181	2·88	0·57
29	F	46	44	63	137	2·18	0·24
87	F	51	49	64	160	2·50	0·65
62	F	52	46	56	172	3·07	0·00
61	F	46	45	61	168	2·75	0·00
84	F	64	42	66	203	3·08	0·23
58	F	64	48	59	149	2·52	0·39
77	F	49	44	65	164	2·52	0·37
8	M	53	50	68	174	2·55	0·27
82	F	50	50	59	163		0·72
113	M	49	37	66	197	2·98	1·13
31	M	52	46	65	154	2·76	0·60
81	F	59	56	61	170	2·78	0·70
42	F	59	57	60	142	2·36	1·13
101	F	68	57	66	250	3·79	0·30
3	F	61	59	65	177	2·72	0·70
5	F	64	55	62	145	2·33	0·90
78	M	51	51	62	176	2·63	1·20
112	F	70	56	65	159	2·44	0·35
54	F	62	60	66	161	2·44	0·08
96	F	67	51	60	159	2·64	0·50
25	F	72	60	63	156	2·48	0·68
111	F	62	59	64	173	2·70	0·35
40	F	53	53	60	168	2·80	0·00
28	F	74	65	56	135	2·41	0·23
34	F	62	62	60	155	2·58	0·08
102	M	31	30	71	231	3·26	0·38
79	F	43	38	70	224	3·20	0·72
109	F	60	43	64	224	3·50	0·49
88	F	42	42	61	201	3·30	0·00

In Tables II and III are shown the details of the cases in the two groups. In type I the age of onset varies from 9 to 73, and on the whole the patients do not exceed their expected weight. The insulin sensitivity tends to be above the average for the whole series (0.65), the mean being 0.78. In type II the age of onset varies from 14 to 65, the patients are nearly all above their expected weight, and the mean insulin sensitivity is well below that for our whole series, being 0.48.

Statistical Analysis

The figures for type I and type II were analysed statistically, and Table IV shows the mean for each type of the weight/height ratio, the age of the patient, and the insulin sensitivity, together with the range and standard deviation of the last statistic.

TABLE IV

		Type I	Type II
Weight/height ratio..	Mean	2·07	2·79
Age of patient ..	,,	50	52
Insulin sensitivity ..	,,	0·78	0·48
	Range	0·13–1·88	0·00–1·20
	Standard deviation	0·44	0·31

The difference in insulin sensitivity in the two groups is highly significant—that is, the chances are less than 1 in 100 of a difference of this order arising purely by chance. But one must remember that 20 intermediate type cases have been discarded from this analysis.

Now although it was pointed out earlier that the presence of frank obesity was not necessary for the recognition of the constitution of the type II patient, many of our patients of this type were overweight (see Table III). Partial correlation coefficients were therefore calculated between insulin sensitivity and the weight/height ratio of the patients to see whether obesity could be eliminated as the possible cause of the insulin insensitivity of the group.

These partial correlation coefficients are as follows:

Insulin sensitivity–obesity: type I, + 0.24; type II, − 0.20.

Although the difference between these coefficients is significant, the variation of each of them from zero is not significant, and it is not considered justifiable to draw conclusions from them at this stage.

Discussion

In a study of 95 diabetic patients, 38 were found to have an unremarkable constitution and 37 conformed to a definite constitutional type which could be recognized clinically. The latter group tended to be overweight, using a weight (lb.)/height (in.) ratio of 2.1 as the standard of normality.

Although our statistical study does not enable us to define the influence of overweightness on the insulin sensitivity, our clinical impression is that the relative insensitivity of the type II patient is probably a fundamental constitutional characteristic and not directly related to the weight. The factor of overweightness does, however, require further investigation, and it is of interest to note in Tables II and III that, though the insensitive type II patients are generally overweight, nevertheless those patients of unremarkable constitution who are relatively insensitive are, in most cases, also relatively underweight.

Since the preparation of this paper was completed, and during the planning of further anthropometric studies in order to define the constitution of the type II diabetic more clearly, our attention has been drawn to the work of Draper, Dupertuis, and Caughey (1944).

Dupertuis, who is not a clinician, analysed anthropometric measurements and somatotypings from a series of 225 diabetics and observed that two clearly different morphological types could be recognized. He divided these patients into types I and II, and described those in type I as being more linear in form than those in type II, who were heavier and whose form was more rounded. He subdivided his type I cases into subdivisions IA and IB—the former showing good muscular development and the latter being more feminine in their features and occupying an intermediate position between types IA and II. He thought that because of their youth they were not yet obese, but that their form indicated a potentiality for that state later on.

It will be seen that such a classification of diabetics by constitutional type is almost identical with the one suggested by us—except that we would classify patients from type IB as type II patients, remembering our earlier statement that frank obesity is not a necessary feature for the recognition of this constitutional variation.

Furthermore, when Dupertuis asked his clinical colleague Caughey to correlate his constitutional variants with the clinical features of the cases they found more than an 80% correlation between morphology and clinical expression. Thus the type I patients were generally severe diabetics but insulin-sensitive, becoming ketosed with poor control, and the type II patients were generally less severe but insulin-resistant and having little tendency to ketosis or hypoglycaemia.

Thus although no insulin-sensitivity tests were carried out by these workers, and although we have so far done no somatotyping, there is a remarkable degree of accord between their observations and the observations recorded in this present paper—namely, that there are two constitutional types of diabetic who differ in their reaction to insulin and in whom we consider that the aetiology of the diabetic state is probably different.

Summary

There are two clinical types of diabetic, which can be identified by their appearance.

The first type are of an unremarkable constitution—that is, we could find no characteristic features common to the group. The second type present certain unmistakable features, although all the stigmata need not be present in each case.

One-fifth of the patients examined were intermediate in type and could not be classified.

The mean insulin sensitivity of the patients in our series falling into type I was 0.78 and in type II it was 0.48.

Partial correlation coefficients for insulin sensitivity and obesity in the two types do not enable us to define precisely the effect of weight on insulin sensitivity, but our clinical impression is that in most cases the actual sensitivity of a patient is a fundamental constitutional characteristic.

The similarity between these observations and those of other workers has been stressed and further anthropometric studies are being planned.

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THE RESPONSE OF MEGALOBLASTIC MACROCYTIC ANAEMIA TO CRYSTALLINE PENICILLIN G

PRELIMINARY REPORT

BY

HENRY FOY, M.A., Ph.D.

ATHENA KONDI, M.D.

Wellcome Trust Research Laboratory,

AND

ANTHONY HARGREAVES, M.A., M.B., B.Ch.

Colonial Medical Service, Kenya

During the course of work on the anaemias of Africans in Kenya we were often struck with the reticulocyte responses which followed the administration of crystalline penicillin G for reasons other than anaemia. However, as these patients had generally been given iron, "marmite," or liver, we did not consider that penicillin could be regarded as the only effective agent. We decided, therefore, to treat a case of macrocytic megaloblastic anaemia with nothing but penicillin.

In carrying out these experiments we believed that penicillin might be effective in these dyshaemopoietic anaemias, as a result of the work that had recently been done on changes in the intestinal flora that occur after antibiotic treatment.

We considered that if an abnormal intestinal flora was inhibiting the synthesis, absorption, or utilization of essential haemopoietic factors, then penicillin might be regarded as a means of dealing with this. We also had in mind the work of Cameron *et al.* (1949), in which it was suggested that in the macrocytic megaloblastic anaemias of intestinal stricture there might be changes in the flora of the intestines which might lead to (1) loss of an organism that synthesizes haemopoietic factors, (2) production of an organism that competes for haemopoietic factors, or (3) the production of antagonists. It is known that penicillin prevents the assimilation of glutamic acid by certain bacteria (Gale and Taylor, 1946), and this may affect the synthesis of pteroylglutamic acid.

There is also the possibility that penicillin might have been acting directly as a haemopoietic factor in a similar way to liver, folic acid, marmite, or B_{12}. There is the additional possibility that penicillin may be affecting the metabolism, utilization, and excretion of certain essential amino-acids, since it is known that penicillin is derived from amino-acids. In this connexion we may mention that a number of urines from our cases of anaemia show the comparatively rare "T-spot" in the distribution of amino-acids on the chromatograms prepared by Dr. C. E. Dent, of University College Hospital Medical School. "T-spot," according to Dr. Dent, is an unknown amino-acid* probably present in traces in all human urines, but which constantly occurs in large quantities in 4–5% of normal persons. When present in such quantities it tends to be associated with a characteristic pattern of the other commonly occurring amino-acids. This urinary abnormality is hereditary (Dent and Harris, unpublished work). Excessive excretion of "T-spot" may also occur in liver disease (Dent and Walshe, 1950). Until more analyses have been done the question whether the "T-spot" distribution in these cases from Kenya is pathological or accidental must be left open. The glutamic acid present in such high concentration is probably an artifact due to breakdown of complexes during the transit of urine from Nairobi to London (Dr. Dent, personal communication).

The megaloblastic macrocytic anaemia that occurs in *Dibothriocephalus latus* infections led us to postulate that the presence of this parasite or other helminths in the intestine might in some way interfere with synthesis, utilization, or absorption of haemopoietic principles (Foy, Kondi, and Hargreaves, 1950; Foy, Kondi, Hargreaves, and Lowry, 1950).

With these possibilities in view, we treated a case of megaloblastic macrocytic anaemia with nothing but penicillin injections. The results, which are given below, indicate that the response was exactly similar to that obtained with any haemopoietically active substance. The reticulocyte response was maximal for the blood count and was followed by red cell and haemoglobin regeneration. In addition, the bone marrow, which contained both megaloblasts, and giant stab-cells before treatment, showed a complete and rapid disappearance of the former and a slower disappearance of the latter. This is exactly similar to what we have found to occur in the megaloblastic macrocytic anaemias of Macedonia and Kenya when treated with a potent liver extract, folic acid, or B_{12}. The Price-Jones curve, which had originally shown anisocytosis and macrocytosis, reverted to the normal pattern.

Case History

A Kikuyu woman reported to Dr. Brian Harris at the Kiambu Native Hospital in May, 1949, with an anaemia, having a red cell count of 2,790,000 and a haemoglobin of 65%. No facilities for more extended examinations were available at Kiambu. She was treated by Dr. Harris with 2 ml. of "neo-hepatex" for five days, recovered, and was discharged. In August, 1949, the woman again appeared at Dr. Harris's dispensary with an anaemia. No blood count or haemoglobin estimations were done. 2 ml. of neo-hepatex was again given for five days and the patient was discharged well. In January, 1950, the woman appeared once more, and on this occasion Dr. Harris put the case at our disposal. She was transferred to the Nairobi Group Hospital on January 10, 1950.

First Admission

Physical examination showed an extremely anaemic well-nourished negress of good physique, aged about 30; she had never been pregnant; she was icteric and her ankles were slightly oedematous; the spleen and liver were not enlarged; her tongue, teeth, and nails were all normal, and she had no abnormal neurological signs. Venous blood was taken without any constriction, and the laboratory findings are given fully in Table I and Fig. 1.

The Price-Jones curve is shown in Fig. 2, and harmonizes with the M.C.V. of 97 μ^3. This picture fits in with that previously described for many of the anaemias of Kenya (Foy *et al.*, loc. cit.).

A gastric test was done after histamine, and showed the following free acid in N/10 NaOH equivalents: fasting, 2 ml.; 15 minutes, 0.5 ml.; 30 minutes, 4 ml.; 60 minutes, 4 ml.; 120 minutes, 2 ml. Like so many of our cases here, she was hypochlorhydric (see below).

Five separate examinations of the stools revealed no intestinal parasites. Her marrow contained typical Ehrlich's megaloblasts and giant stab-cells (Foy, Kondi, and Hargreaves, 1950; Foy, Kondi, Hargreaves, and Lowry, 1950).

The patient was kept under observation from January 10 to 18 with no treatment whatever. The reticulocyte response

*Since this article was prepared for publication the "T-spot" has been identified as β-amino*iso*butyric acid. (Crumpler, Dent, Harris, and Westall, *Nature, Lond.*, 1951. In press.)

TABLE I.—*Laboratory Findings (First Admission)*

Date	Retics. (%)	R.B.C. (Mil.)	Hb (g.%)	P.C.V. (%)	M.C.V. (μ^3)	M.C.H.C. (%)	Bilirubin (mg./100 ml.)	Schumm's Test	Remarks
10/1/50 ..	5·7	1·34	4·0	13·0	103	30·6	2·8	+	Sickling negative at all pressures and after 72 hours
11/1/50 ..	2·4	1·35	4·0	13·0	97	29·2	2·6	++	Coombs test negative. W.B.C. 2,460
13/1/50 ..	3·2	—	—	—	—	—	—	—	
15/1/50 ..	4·0	—	—	—	—	—	—	—	
17/1/50 ..	6·0	—	—	—	—	—	—	—	
18/1/50 ..	3·4	—	—	—	—	—	—	—	
19/1/50 ..	6·0	—	—	—	—	—	—	—	Lung congestion. Temperature
20/1/50 ..	12·0	—	—	—	—	—	—	—	Temperature down
21/1/50 ..	11·9	—	—	—	—	—	—	—	
22/1/50 ..	16·0	—	—	—	—	—	—	—	
23/1/50 ..	25·0	—	—	—	—	—	—	—	
24/1/50 ..	26·0	—	—	—	—	—	—	—	
25/1/50 ..	37·0	—	—	—	—	—	—	—	
26/1/50 ..	33·0	2·70	6·2	—	—	—	—	—	
27/1/50 ..	24·0	—	—	—	—	—	—	—	
28/1/50 ..	19·0	—	—	—	—	—	—	—	
30/1/50 ..	8·0	—	—	—	—	—	—	—	
2/2/50 ..	4·9	3·44	7·7	32·0	94	25·0	0·8	Neg.	W.B.C. 4,300
9/2/50 ..	0·2	3·20	7·7	32·0	100	24·0	0·5	"	
21/2/50 ..	2·3	3·50	8·0	32·0	91	25·0	0·4	"	
1/3/50 ..	2·0	4·47	9·0	37·0	83	27·0	0·4	—	
13/3/50 ..	0·0	4·0	11·0	35·0	95	30·0	—	—	
23/3/50 ..	0·0	3·98	11·0	38·0	95	28·0	—	—	
2/4/50 ..	4·0	4·0	10·5	35·0	95	28·0	—	—	Left hospital

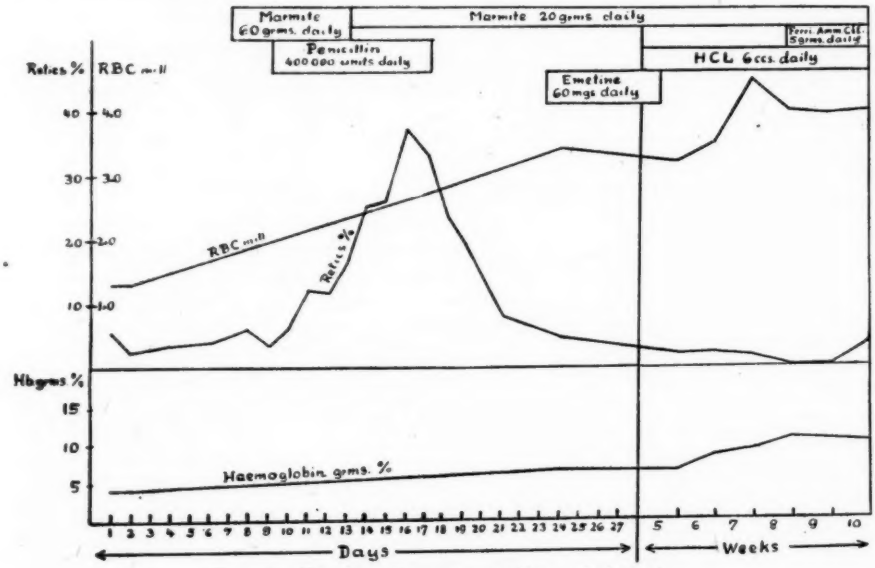

FIG. 1.—Results of treatment (first admission).

during this period is shown in Table I and Fig. 1. On January 18 she was put on 60 g. of marmite daily. On the 20th she developed pulmonary congestion with a high fever and was given 400,000 units of crystalline penicillin G daily for seven days to control this lung condition. During this period the marmite was continued, but was reduced to 20 g. a day. From the 18th to the 25th her reticulocytes rose to 37%, the blood count to 2,700,000, and the haemoglobin to 6.2 g. %; this in spite of her pulmonary condition. The rest of the patient's haematological history is given in Table I and Fig. 1.

On February 1 *Entamoeba histolytica* cysts were found in the faeces. For these emetine treatment was instituted next day, and was continued for ten days.

The woman was discharged from hospital on April 2 with a red cell count of 4,430,000 and a haemoglobin of 8.8 g. %. The bad haemoglobin response is often characteristic of these cases here, and may be connected with low gastric acidity, low protein diet, or other unknown factors.

When the patient was discharged she was given a letter to her husband informing him that if he wanted to maintain his wife in good health he should see that she had meat at least once a day. Whether this had any effect cannot with certainty be stated, but the woman assured us at her next entry to the hospital that she had eaten meat daily.

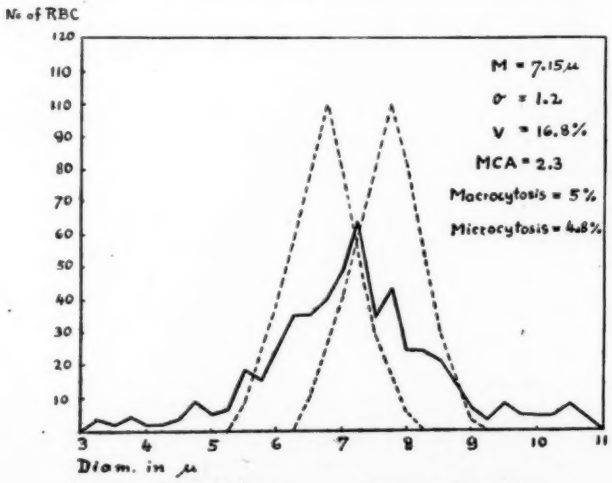

FIG. 2.—Price-Jones curve on January 10, 1950.

Second Admission

On November 7 the patient again appeared at the Nairobi Group Hospital, obviously very ill and very anaemic. Her reticulocytes on entrance were 2.2%, red cell count 1,757,000, and haemoglobin 5 g. %. The complete haematological findings for her entrance examination and for the whole period of her stay in hospital are shown in Table II and Fig. 3.

A gastric test done on November 9 showed complete histamine-fast achlorhydria. Another gastric test on the 20th gave a similar result. A Price-Jones curve taken at the same time as the first blood examination is given in Fig. 4.

Four separate examinations of the stools showed no intestinal parasites. Physical examination revealed a condition similar to that on her previous admission. The liver and spleen were not enlarged, the ankles showed slight oedema, and there was the faintest suspicion of glossitis. A thorough neurological examination by Dr. Shanly showed no nervous involvement, but the patient was not very co-operative. Chest and heart were normal.

TABLE II.—*Laboratory Findings (Second Admission)*

Date	Retics. (%)	R.B.C. (Mil.)	Hb (g.%)	P.C.V. (%)	M.C.V. (μ^3)	M.C.H.C. (%)	Bilirubin (mg./100 ml.)	Schumm's Test	W.B.C.	Remarks
7/11/50 ..	2·5	—	—	—	—	—	—	—	—	Feels very ill. Stools negative for parasites
8/11/50 ..	2·2	—	—	—	—	—	—	—	—	
9/11/50 ..	1·4	1·757	5·0	17·5	100	29·4	2·8	+ +	1,880	Sickling negative
10/11/50 ..	1·5	—	—	—	—	—	—	—	—	Headache. Stools negative
11/11/50 ..	1·4	—	—	—	—	—	—	—	—	Nervous system shows nothing abnormal
12/11/50 ..	3·0	—	—	—	—	—	—	—	—	Stools negative
13/11/50 ..	9·0	—	—	—	—	—	—	—	—	Feels better
14/11/50 ..	27·0	—	—	—	—	—	—	—	—	Much better. Stools negative
15/11/50 ..	36·0	2·430	5·8	24·5	101	23·8	1·5	+	—	
16/11/50 ..	29·0	—	—	—	—	—	—	—	—	Stools negative
17/11/50 ..	20·0	—	—	—	—	—	—	—	—	
18/11/50 ..	16·0	—	—	—	—	—	—	—	—	
19/11/50 ..	—	—	—	—	—	—	—	—	—	
20/11/50 ..	8·0	—	—	—	—	—	—	—	—	
22/11/50 ..	5·0	—	—	—	—	—	—	—	—	
23/11/50 ..	3·0	3·250	8·7	31·0	98	28·0	1·0	+	3,360	
14/12/50 ..	0·3	4·500	11·0	37·0	84	29·8	0·4	Negative	4,120	Still in hospital. Better
3/2/51 ..	0	4·920	13·5	43·0	87	31·4	0·4	—	4,900	

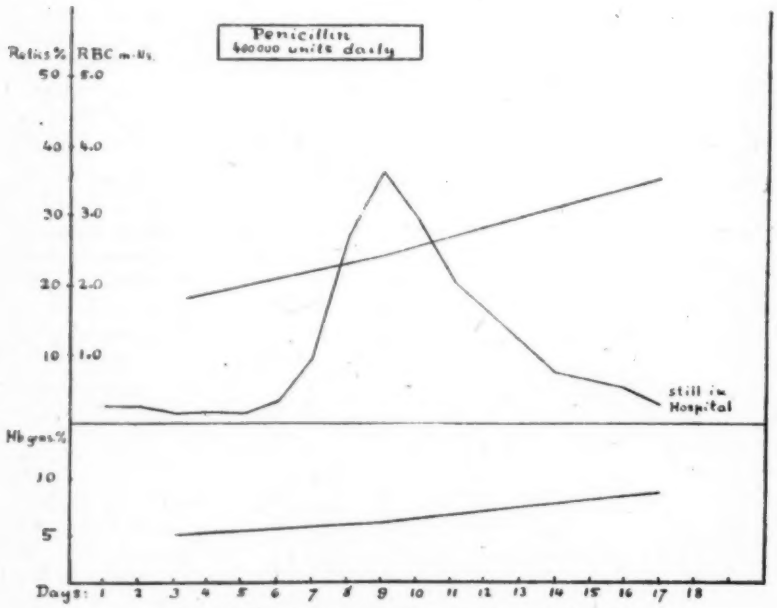

FIG. 3.—Haematological findings (second admission).

The patient was kept under observation until November 10, during which period the reticulocytes fluctuated between 2.2% and 1.4%. On that day she was put on 400,000 units of crystalline penicillin G daily for seven days. By November 15 her reticulocytes had reached 36%, her red cell count was 2,430,000, and her haemoglobin 5.8 g. %. Results of her final examinations are shown in Table II.

A marrow puncture done on admission showed many intermediate megaloblasts and giant stab-cells. A puncture done on November 16 showed that the megaloblasts had all disappeared and there was a great reduction in the number of giant stab-cells.

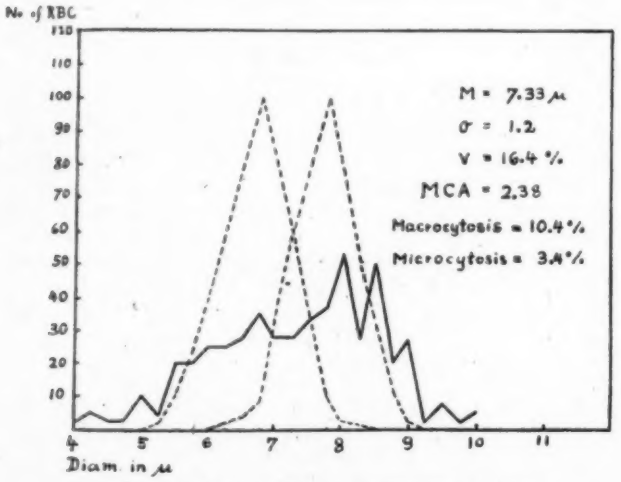

FIG. 4.—Price-Jones curve on November 7, 1950.

Discussion

The response this patient gave to penicillin seems to us to be identical with that obtained in similar anaemias as a result of the administration of crude or refined liver, B_{12}, folic acid, or any other active haemopoietic substance. It is possible that there may have been some hidden infectious or toxic process on which the penicillin acted, thus removing a bone-marrow depressant, as sometimes happens in the case of *E. histolytica* infections when treated with emetine, or in malaria when treated with quinine. There was, however, no sign of such infectious or toxic process in this woman, and the reticulocyte response was maximal and followed by haemoglobin and red cell regeneration such as occurs after the administration of a potent liver extract. The response of the bone marrow and the Price-Jones curve will likewise be similar to those we get after treatment with known active haemopoietic substances. From this case, we see no reason to doubt that it was the penicillin that brought about the remission.

The means by which penicillin acted on this anaemia cannot at present be stated. As we have pointed out above, it may have produced its effect by destroying an organism which was competing for some haemopoietic substance, or it may have removed a haemopoietic antagonist, or even acted directly as a haemopoietic substance. Any or all of these hypotheses might explain the response.

The question of pernicious anaemia cannot be entirely dismissed in the present case. So far as we are aware, pernicious anaemia has not been described in an adult of pure negro stock. In our opinion this case is not altogether typical of pernicious anaemia, in spite of the presence of a histamine-fast achlorhydria and the repeated relapses. The patient's response to large doses

of marmite on her first admission (discounting the penicillin) does not rule out pernicious anaemia, since it is known that marmite, given in sufficient quantities, may contain enough folic acid to bring about a remission of that disease. As a case of pernicious anaemia was not available here to feed on gastric juice from the patient, after incubation with beef, we were unable to ascertain whether our patient actually contained intrinsic factor. The absence of neurological symptoms in this case, which had relapsed so frequently, is also perhaps against a diagnosis of pernicious anaemia, but we think the question should remain open for the present. In any event we are here only concerned with reporting the response to penicillin.

Work is continuing on the treatment of these megaloblastic anaemias with penicillin alone, and if it can be confirmed that a haemopoietic response similar to that outlined above can be obtained, then we think the field of discussion on the origin of this type of anaemia will be greatly widened.

Summary

A case of megaloblastic anaemia is reported that responded to the administration of 400,000 units of crystalline penicillin G daily for seven days. Her reticulocytes rose to 37%, and this was followed by a rise in the haemoglobin and red blood cells. No other treatment was given.

The megaloblasts had disappeared from the marrow by the fifth day of treatment and the giant stab-cells had become very much less numerous.

The response obtained to penicillin in this case in no way differed from that obtained from potent liver extract, folic acid, B_{12}, or marmite.

It is suggested that the penicillin may have produced its effects by (*a*) destroying some organism which was competing for haemopoietic substances; (*b*) removal of some haemopoietic antagonist; (*c*) preventing the absorption of glutamic acid by competing organisms, which might thus interfere with the synthesis of pteroylglutamic acid; (*d*) affecting the metabolism and excretion of some essential amino-acids.

We are indebted to the Director of Medical Services, Kenya, for permission to publish this work, and for innumerable facilities granted to us at the Medical Research Laboratory and the Nairobi Group Hospital. To the European and African nursing staff of the Group Hospital we must also tender our thanks for many facilities to meet our somewhat fastidious demands.

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The first two women doctors since 1945 to volunteer and be accepted for the U.S. Army Medical Corps reported for duty in January in the preventive medicine division of the Office of the Surgeon-General. The original law authorizing the commissioning of women doctors ended in 1947, and the new authority was established in August last. During the war of 1939–45 the U.S. Army commissioned 72 women as physicians, and 26 of these served overseas. Their duties and conditions of service are identical with those of men except that they do not serve in "forward medical installations in combat zones."

TRIAL OF A CINCHONINIC ACID DERIVATIVE IN SOME COLLAGEN DISEASES

BY

J. B. RENNIE, M.D., M.R.C.P.

J. A. MILNE, M.B., M.R.C.P.

AND

J. SOMMERVILLE, M.B., Ch.B.

(From the Departments of Medicine, Pathology, and Dermatology, the University and Western Infirmary, Glasgow)

[WITH SPECIAL PLATE]

When investigating a series of antidiuretic compounds Blanchard, Dearborn, Maren, and Marshall (1950a) suggested that a cinchoninic acid derivative, 3-hydroxy-2-phenylcinchoninic acid (H.P.C.) might be effective in treatment of conditions responding to A.C.T.H. This was prompted mainly by their discovery that when the pituitary was intact H.P.C., like A.C.T.H., reduced the ascorbic acid content of the rat adrenal.

After it had been shown by experiment on animals that toxicity was minimal (Marshall and Dearborn, 1950) a clinical trial of this preparation was made on patients suffering from conditions thought likely to benefit from a drug with A.C.T.H.-like properties (Blanchard, Harvey, Howard, Kattus, Marshall, Newman, and Zubrod, 1950b). The cases treated were 10 patients with acute rheumatic fever, 10 with the chronic variety of rheumatoid arthritis, three with bronchial asthma, and two with disseminated lupus erythematosus.

The drug was administered by mouth for periods up to 21 days, the dose being 20 mg. per kg. of body weight on the first day, and 10 or 20 mg. per kg. each day or alternate days thereafter.

Toxic effects, except for one instance of drug sensitivity (fever), were nausea, vomiting, and abdominal cramps, limited to less than 10% of patients. To obviate these effects Blanchard *et al.* (1950b) advocated that the drug should be taken after breakfast in three doses at hourly intervals with an equal amount of sodium bicarbonate. The alimentary symptoms tended to disappear with continued use of H.P.C. and the necessity to withdraw the drug did not arise.

A supply of H.P.C. was made available to Professor J. W. McNee by Roche Products, Ltd. The drug, a yellow powder, was put up in coated tablets because of its bitter flavour. The dosage used by us was 20 mg. per kg. of body weight by mouth daily, which in some instances was increased to 40 mg. In seven of the twelve cases treated administration was continued for one week, in the rest for two or three weeks. The plan of administration recommended by Blanchard *et al.* (1950b) was followed, but sodium bicarbonate was not given.

The patients treated so far comprise four with rheumatic fever, two with polyarteritis nodosa, three with scleroderma, and three with lupus erythematosus.

Rheumatic Fever

Four patients—three with acute and one with subacute rheumatic fever—were treated with H.P.C. A typical response is shown in the Chart.

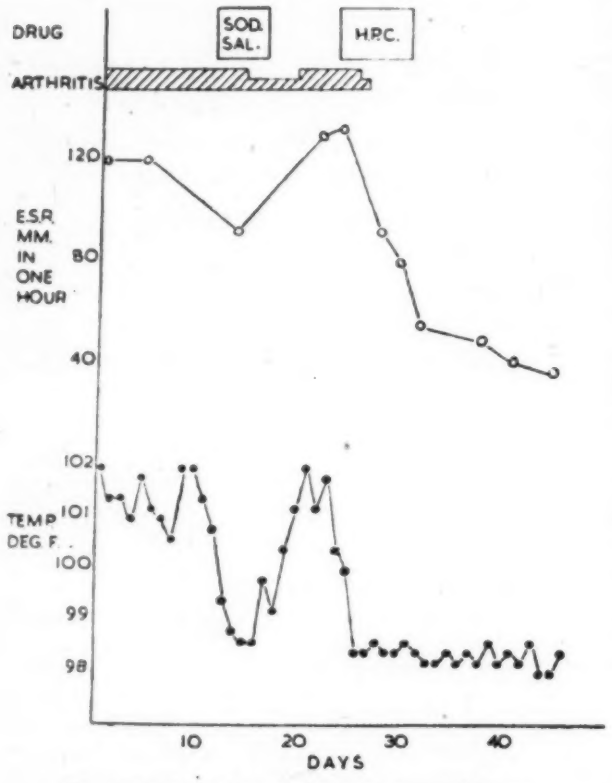

Chart showing effect of H.P.C. in rheumatic fever.

Case 1

A boy of 13 was admitted to hospital on May 30, 1950, complaining of arthritis for 24 hours after a sore throat 15 days previously. There was no history of arthritis, but he had had growing pains from time to time. On admission he was sharply ill with a temperature of 102.2° F. (39° C.) and numerous very swollen and red joints containing much fluid. There were no nodules. W.B.C. numbered 14,800 per c.mm. The E.S.R. was 94 mm. in one hour. The heart was enlarged, the apex beat being 4½ in. (11.4 cm.) from the midline in the fourth left interspace, and a systolic murmur was present at both the base and the mitral area. Blood cultures were negative.

H.P.C., 0.6 g., was given daily from June 1 to 7. Within 24 hours his temperature fell to normal, and his joints were less painful and less red. Twenty-four hours later joint effusions could just be detected; they were gone the following day. He remained symptom-free till June 15, when his temperature rose and he complained of stiffness in the joints. On June 19, although afebrile, he looked ill and once more showed swelling and redness of the carpal and tarsal joints. For another week H.P.C., 0.6 g., was given daily, with rapid relief as before. There was no further relapse. The E.S.R. (Westergren) fell from 94 mm. in one hour at the start of treatment to 56 mm. at the end. It then fell gradually and was 18 mm. six weeks later.

Case 2

A man aged 29, admitted to hospital on May 8, 1950, developed arthritis about two weeks after an attack of tonsillitis. He showed swelling of numerous joints with a moderate degree of pain and tenderness. Limitation of movement was marked. Fever was present. The heart was slightly enlarged, the apex beat being in the fifth left interspace 4½ in. from the midline. The heart sounds were very soft, and there was a short systolic murmur at the mitral area poorly conducted to the axilla. The E.S.R. was 88 mm. in one hour. Salicylates in a dose of 12 g. daily with an equal amount of sodium bicarbonate failed to control the symptoms and provoked nausea and tinnitus. Since the diagnosis was still in doubt, salicylates were omitted and penicillin, 1,000,000 units daily, was given for five days, pending the result of blood cultures. As these were negative, penicillin was stopped and aspirin given. This too caused toxic symptoms, and "disprin" was tried. This substance was better tolerated, but it, too, failed to reduce the temperature to normal. Rheumatic nodules were noted to be present at this time, and faint pericardial friction was heard at the apex for three days (May 17). All treatment was stopped for two days, and fever and joint pains increased. The E.S.R. was 70 mm. in one hour.

H.P.C., 1.2 g., was given on May 19 and continued daily for three weeks. With the first dose there was nausea and some of the drug was vomited, but no trouble occurred thereafter. Within 48 hours the temperature was normal for the first time since admission and joint discomfort very much less, being reduced to stiffness in the mornings. Joint swelling was not much affected, however, and the nodules not at all. Seven days after beginning treatment with H.P.C. there was a period of six days with fever but without return of pains in the joints. When H.P.C. was stopped the E.S.R. was 68 mm. in one hour. Throughout the period the heart size remained unaltered and the heart sounds were very soft. After H.P.C. was discontinued disprin was begun again and continued until discharge on August 19. Joint stiffness and periarticular thickening persisted for many weeks, as did the nodules, but there was no definite relapse. On his discharge from hospital the E.S.R. was still abnormal—24 mm. in one hour.

Case 3

A woman aged 43 had had acute arthritis at 16 years and again at 37. At the time of the second attack it was noted that cardiac damage had occurred. On May 7, 1950, she was admitted to hospital with multiple arthritis which had been present for two weeks. She was a stout woman who was acutely ill and had considerable fever (see Chart). Arthritis was extensive, involving hands, fingers, knees, and feet. In these areas swelling and tenderness, with limitation of movement, existed. Mitral stenosis and aortic incompetence were present. There was no heart failure. No enlargement of the heart was detected, the apex beat being 4 in. (10 cm.) from the midline in the fifth interspace. There were no nodules. The E.S.R. was 120 mm. in one hour. Her temperature was 100–102° F. (37.8–38.9° C.) and pulse rate 90–100. Salicylate, 10 g., and sodium bicarbonate, 10 g., were given daily by mouth from May 19 to 23, with the result that the temperature fell to normal and there was some improvement in the joint disability. Much nausea and some vomiting were provoked along with a degree of mental disturbance, and the drug was stopped. Fever rapidly recurred.

H.P.C., 1 g., was given on June 1 and continued daily for seven days. The temperature fell rapidly, and within 48 hours there was marked subjective improvement in the arthritis: within three days the joints were normal in appearance and there was a full range of movements. A rapid fall in E.S.R. from 125 to 48 mm. in one hour coincided with the administration of H.P.C. No relapse followed withdrawal, and she was discharged on August 3. There was no change in the size of the heart or in the murmurs previously noted. The E.S.R. was 20 mm. in one hour.

Case 4

A girl of 13 was admitted to hospital on June 5, 1950, with a history of polyarthritis for about a month and of frequent sore throats for some years. On admission there was some tenderness and limitation of movement of the right wrist and elbow and of the right hip and tarsal joints, but no swelling or redness. She had slight fever only, up to 100° F. (37.8° C.). Her pulse rate was 90–100, and the E.S.R. 62 mm. in one hour. The apex beat was 4 in. (10 cm.) from the midline in the fifth left interspace. A short systolic murmur, poorly conducted towards the axilla, was present in the mitral area. Nodules appeared on the

J. B. RENNIE, J. A. MILNE, AND J. SOMMERVILLE: TRIAL OF A CINCHONINIC ACID DERIVATIVE IN SOME COLLAGEN DISEASES

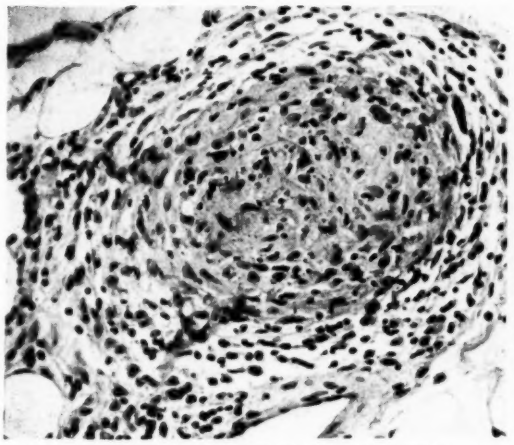

FIG. 1.—Case 6. Biopsy of deltoid muscle. A small artery is seen, the lumen of which is completely obliterated by fibroblastic proliferation. In the centre are some eosinophil leucocytes and particles of nuclear dust. The adventitia is infiltrated with inflammatory cells in which occasional eosinophil leucocytes are present. (H. & E. × 200.)

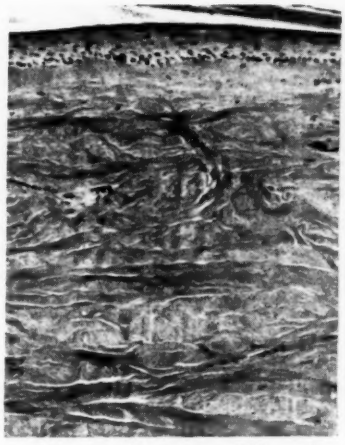

FIG. 2.—Case 7. Skin of abdomen before treatment. Note the stretched atrophic-looking epidermis. The corium is made up of dense parallel bundles of collagen with no differentiation into papillary and reticular layers. (H. & E. × 70.)

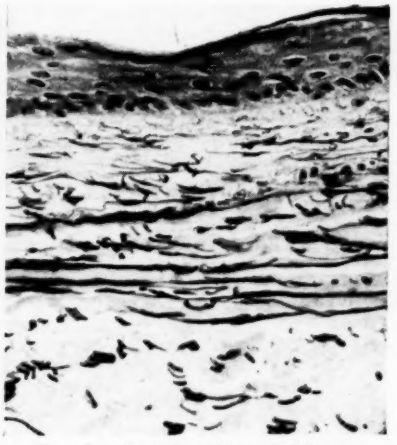

FIG. 3.—Case 7. Skin of abdomen before treatment. This section is stained for elastic fibres and shows these lying parallel to the epidermis. (Orcein. × 200.)

M. D. BABER, E. ap I. ROSSER, AND J. D. O'D. LAVERTINE: CARCINOMA OF THE CERVIX UTERI IN AN INFANT

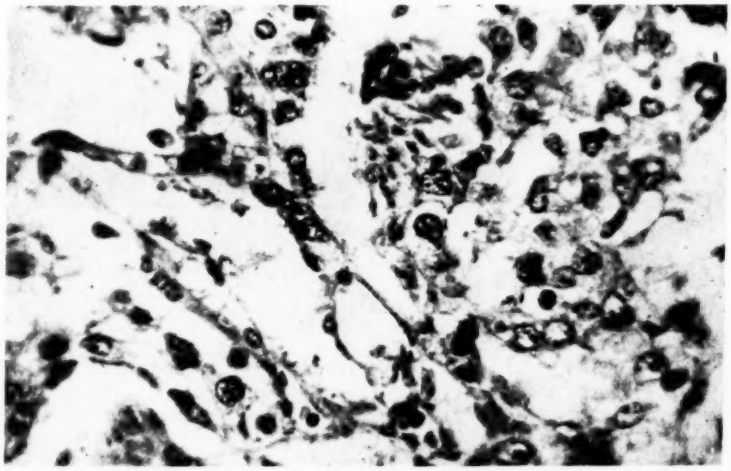

FIG. 1.—Primary growth (× 380): poorly differentiated area.

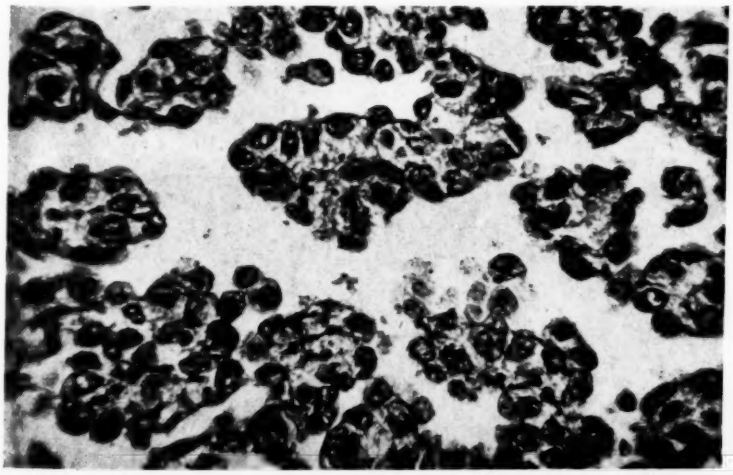

FIG. 2.—Metastasis in liver (× 380): well-differentiated papillary adenocarcinoma.

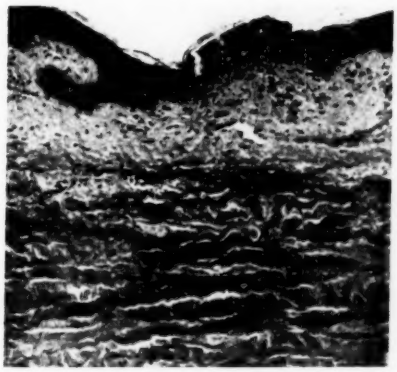

FIG. 4.—Case 7. Skin of abdomen after treatment. The epidermis is thicker and there is evidence of rete pegs. The papillary layer of the corium has re-formed. The reticular layer is still composed of dense collagen, but near the papillary layer there is evidence of breaking up and the fibres are becoming wavy. (H. & E. × 70.)

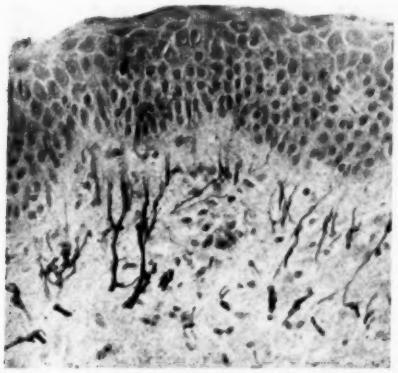

FIG. 5.—Case 7. Skin of abdomen after treatment. The elastic fibres in the upper part of the corium are seen to have assumed their normal relationship, being at right angles to the epidermis. (Orcein. × 200.)

T. TOMASZEWSKI: SIDE-EFFECTS OF CHLORAMPHENICOL AND AUREOMYCIN

FIG. 1.—Scraping of the tongue before treatment. Mixed bacterial flora. (× 1,000.) The patient, who was treated with chloramphenicol, 4 g. daily to a total of 96 g., developed hypertrophic glossitis with brown coloration of the tongue.

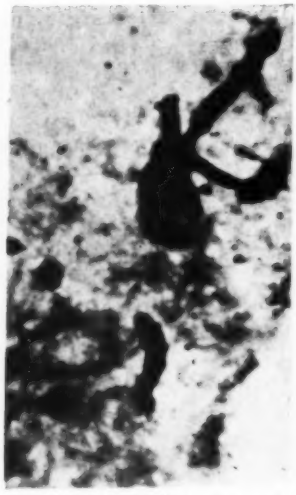

FIG. 2.—Third day of chloramphenicol treatment. Absence of bacteria; scattered groups of fungi.

FIG. 3.—Twenty-fourth day of chloramphenicol treatment. Absence of bacteria; rich growth of fungi. Treatment stopped on that day.

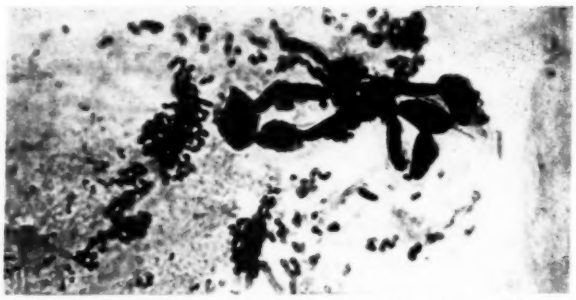

FIG. 4.—Seventeen days after stopping chloramphenicol. Bacteria reappeared after a week, and are here seen in large numbers; scattered groups of fungi are still present.

H. BREBNER: DISSECTING ANEURYSM OF AORTA

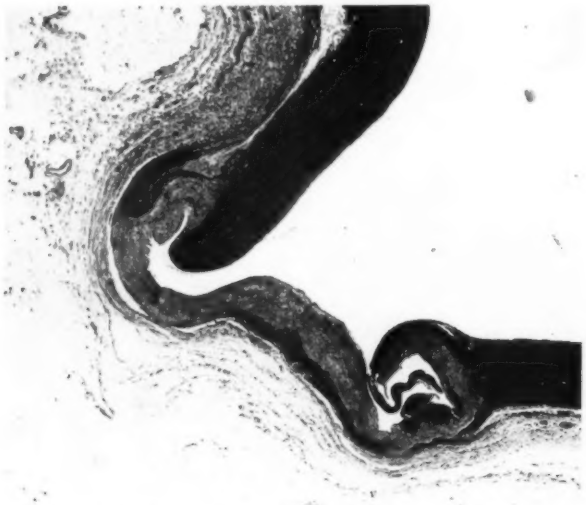

FIG. 1.—Section through aorta at site of dissection, showing disruption of media.

FIG. 2.—Renal artery, showing dissection.

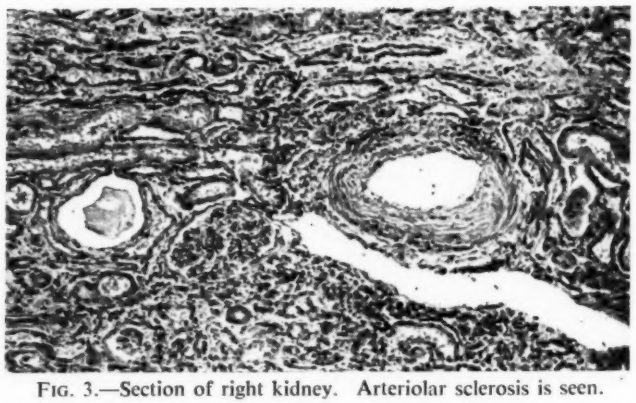

FIG. 3.—Section of right kidney. Arteriolar sclerosis is seen.

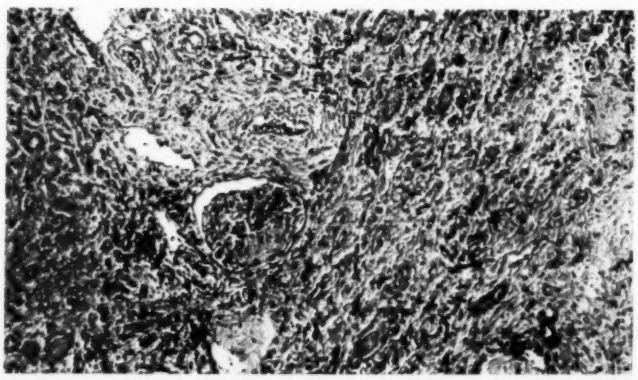

FIG. 4.—Section of left kidney. Arteriolar sclerosis is seen. The edge of an infarcted portion is visible.

occiput on May 9. H.P.C. was started, 0.8 g. daily, on June 10, and continued for seven days. The slight fever ceased at once and the joint pains disappeared. Three days after H.P.C. was stopped fever and joint pains recurred and additional nodules appeared on the wrists and right patella. This patient was subsequently treated with aspirin and made a good recovery.

Comment.—In these four cases, fever and painful joints were relieved. Joint swelling rapidly disappeared in two of the three patients in whom it was present. In two out of four, a fall in E.S.R. proceeded slowly and without apparent relation to H.P.C. therapy, whereas in Cases 1 and 3 a rapid partial fall coincided with the treatment. The drug did not influence the heart so far as could be judged by size or quality of sounds or murmurs. It is also noteworthy that subcutaneous nodules in two patients were uninfluenced.

Polyarteritis Nodosa

Two patients with polyarteritis nodosa were treated.

Case 5

A woman aged 63 had a sore throat in June, 1950, after which fever and anorexia persisted, followed by polyarthritis. She was regarded as suffering from rheumatism, and was treated unsuccessfully with salicylate. Penicillin and a sulphonamide were then tried, also without benefit. Blood cultures and agglutination reactions were negative. On September 2 she developed pain in the left side of the chest and was admitted to Ballochmyle Hospital in charge of Dr. A. P. Agnew. Slight cardiac enlargement and slight general oedema were noted. Fever and tachycardia were continuously present, the leucocytes being 35,800 per c.mm., eosinophils 1%, and haemoglobin 68%. Within a few days there was weakness of arms and legs, with loss of deep reflexes. Throat culture was negative and the urine was normal. Lumbar puncture gave a clear C.S.F., not under increased pressure, containing 20 mg. of protein per 100 ml. and 4 cells per c.mm. At this time the sulphonamide was stopped and streptomycin was given together with penicillin. Slurring of speech and increasing weakness of the limbs were now developing, and she was admitted to the Western Infirmary, Glasgow, on September 14.

In view of the severity of her condition H.P.C., 1 g. daily, was begun at once in conjunction with aneurin hydrochloride, 100 mg. daily, by intramuscular injection. Deterioration continued, with the development of pericarditis and extensive complete motor paralysis in all four limbs. Sensory loss was also present, but co-operation was not good enough to permit of its delimitation. Porphyrins were not present in the urine. On September 29 the white cells numbered 20,000 per c.mm., with eosinophilia of 3%. The dose of H.P.C. was increased to 1.8 g., but on September 30 she died. The clinical diagnosis of polyarteritis was confirmed at necropsy (Dr. G. B. S. Roberts), when the principal relevant findings were small infarcts in the liver and kidneys. No gross abnormality of brain or spinal cord was found. The coronary artery walls were thickened and were considered to be the seat of polyarteritis, and vessels in relation to infarcts in the liver showed similar appearances. A staphylococcal pericarditis was present. Histological examination showed the typical vascular changes in the peripheral nervous system and elsewhere.

Case 6

A woman aged 40 had been under treatment for some time for vague pains said to be rheumatic, for which she received probably 2 gr. (0.13 g.) of phenobarbitone daily for 10 days. There then appeared redness of face, body, and limbs, accompanied by puffiness, a feeling of heat, and intense itching. She was admitted to the infirmary as a case of dermatitis exfoliativa due to phenobarbitone. At that time the leucocyte count was 18,000 per c.mm. with 37% eosinophils. Within a few days the state of the skin improved, but blood and albumin appeared in the urine along with marked generalized oedema. The blood pressure began to rise from 150/90 to 200/120 mm. Hg, at which point a generalized convulsion occurred on August 24. This was considered to be a hypertensive crisis. The blood urea was 50 mg. per 100 ml.

Five weeks after admission hypertension and haematuria persisted unchanged, together with irregular fever and tachycardia. There were alimentary symptoms, nausea, vomiting, and epigastric pains which could not be explained on a uraemic basis, as the blood urea was now only 35 mg. per 100 ml. The stools contained no blood. Ophthalmoscopic examination showed in both eyes oedema of the papillomacular and peripapillary regions with fragmentation of the pigment of the choroid. Patches of exudate with soft edges and small clumps with hard edges were seen, while the retinal vessels themselves were comparatively normal. The picture was thought likely to be that of polyarteritis nodosa rather than a hypertensive or renal retinopathy (Dr. R. Leishman). On September 21 a biopsy of the right deltoid muscle was made. In one of the sections a small artery was seen to be obliterated, and in the centre were nuclear dust and an occasional eosinophil (Plate, Fig. 1). The leucocyte count was 12,200 per c.mm. with 2.5% eosinophils. The E.S.R. was 50 mm. in one hour.

Treatment with H.P.C. was begun on September 30, 1.2 g. being given daily for 17 days, increased to 2.4 g. for four days, after which it was discontinued owing to nausea and occasional vomiting. During treatment the blood pressure fell from 190/120 to 160/105. Haematuria ceased, though albuminuria still persisted, and alimentary symptoms completely disappeared along with fever and tachycardia. The E.S.R. fell from 50 to 23 mm. in one hour. Ophthalmoscopic examination on November 11 showed a completely different picture. The most prominent feature was the new development of a well-marked macular star. Retinal oedema had disappeared, as had the exudates of soft and woolly type formerly noted.

When seen in the out-patient department on November 28 the patient was very well and had gained 3 lb. (1.36 kg.) in weight. Albuminuria was slight and haematuria microscopic, while the blood pressure was 140/90 mm. Hg. The E.S.R. was 8 mm. It was stated that the vision was improving, though no change in the state of the fundi was obvious from the last examination.

Comment.—Two patients with polyarteritis nodosa were treated with H.P.C. One was very ill at the beginning of treatment, which did not appear to influence the course of the illness in any way. Regression of the disease is known to occur, and even spontaneous recovery, but in our other patient administration of H.P.C. seemed to cut short the illness and was followed by a remarkable change for the better. The blood pressure, high at the beginning of treatment, fell to normal, fever and tachycardia ceased, as did nausea, epigastric pain, and vomiting, while the lesions in the fundi regressed. At the time of writing she was gaining weight and feeling well, though the residual lesions in the macular areas had reduced visual acuity and albuminuria and microscopic haematuria were still present.

Scleroderma

After a preliminary biopsy three patients with scleroderma received H.P.C.

Case 7

A woman aged 66 was admitted to hospital on August 5, 1950. Two and a half years previously she had noted an area of skin on the back becoming "grey and stiff," associated with severe itching. This process spread gradually to the abdomen and to the thighs, so that, latterly, movement was greatly restricted and she had had great difficulty in sitting down and rising from a chair. Walking was done

with the aid of a stick and in a semi-stooping position. She had been for long periods in hospital, but had not benefited. She was a stout woman with hypertension. There was extensive scleroderma of the back, abdomen, thighs, and legs, enclosing in the popliteal space an indolent ulcer with widespread secondary infective dermatitis. Barium swallow revealed no oesophageal lesion. Biopsy from the skin of the abdomen (Plate, Figs. 2 and 3) showed a rather atrophic epidermis with loss of the rete pegs, the distinction between the papillary and reticular layers of the corium being lost, the entire corium being occupied by thickened sclerotic acellular bundles of collagen. The staining reactions of this collagen showed some deviation from the normal, tending to take up a yellowish-brown colour when treated with van Gieson's stain. In appropriately stained sections the elastic tissue of the corium could be seen stretched out and lying parallel to the epidermis.

Treatment with H.P.C., 1.8 g. daily, was given from August 11 to 17 without immediate effect on the lesion, but by August 30 it was noted that all sclerodermatous areas were less rigid and less glazed, and showed a tendency to become slightly scaly. The broken-down area and the dermatitis on the leg had regressed remarkably. By September 18 the patient's movements were restored to normal. Save for some scattered areas of brown pigmentation, all the affected parts of the skin appeared to be almost normal in consistence and colour. Biopsy (October 3), from an area near the first, showed a considerable change (Figs. 4 and 5). The rete pegs had reformed, the papillary layer of the corium was recognizable, and in it patent capillaries were evident. The collagen of this layer showed normal staining properties. The reticular layer was still composed of dense sclerotic collagen, but in its more superficial part the fibres showed a tendency to loosen and become wavy once more. An interesting feature was the return of the normal arrangement of elastic fibres running at right angles to the epidermis in the papillary layer of the corium. The clinical improvement had been maintained when the patient was last seen on November 2, and she was naturally overjoyed with the return of mobility.

Case 8

A girl aged 11 was admitted to hospital on July 3, 1950. Three months earlier an area of skin on the left leg had become firm and shiny. There was no systemic disturbance. She was a well-nourished girl, with no complaint save for a patch 4 by 2 in. (10 by 5 cm.) on the outer aspect of the left leg just below the knee. It was white, smooth, and very hard. There was no heliotrope edge. The E.S.R. was 4 mm. in one hour. The histological features of the lesion before treatment were those of active scleroderma, the distinction between papillary and reticular layers of the corium being lost, the affected area being occupied by swollen collagen bundles with altered staining properties. At the junction with normal tissue a band of lymphocytic infiltrate was present.

H.P.C., 1 g., was given daily from July 11 to August 2. At the end of that time the patch was unchanged in size, but the skin was much softer and could be wrinkled. In colour it was now brown. On August 3 the histological picture had altered considerably. The arrangement and tinctorial properties of the collagen of the upper two-thirds of the corium were almost normal. In the deeper part, however, slight thickening and hyalinization of the bundles were discernible and traces of inflammatory infiltrate were still present. On October 3 the lesion was still of the same size, but was harder than on September 1. Biopsy showed that the sclerodermatous process was again evident, and, though not so prominent as in the initial biopsy, it was more marked than in the second. The clinical picture showed no further alteration on October 30.

Case 9

A woman aged 51 was admitted to hospital on August 4, 1950. About two years previously the skin over the breasts and part of the chest and abdomen became very hard, itchy, and grey. She was found to be a well-nourished and healthy woman with lesions of scleroderma on the breasts, upper abdomen, antecubital fossae, left arm and forearm, anterior aspects of the thighs and shins, and the dorsum of the right foot. In these areas the skin was pale, smooth, and very hard, with atrophic scarring in places and a faint irregular heliotrope margin on the breasts. There was some brownish pigmentation on the chest and abdomen, but no scaling. A barium swallow showed no evidence of an oesophageal lesion. Biopsy performed on a lesion on the flexor aspect of the left wrist revealed the typical histological picture of active scleroderma.

H.P.C., 1 g. daily, was given from August 11 to 17. Within three days itching was said to be gone, and at the end of the time the lesions were much softer. On August 18 the histological picture was basically similar, though sections cut and stained simultaneously with those of the first biopsy showed a slight but definite improvement as evidenced by less thickening and hyalinization of the collagen bundles, with more normal tinctorial properties. On August 24 clinical improvement was very marked, the abdominal skin in particular being almost normal save for brownish pigmentation. The breast lesions had improved less, but were softer than before. On October 3, however, there was a definite relapse, the lesions appearing larger and firmer, and a heliotrope margin was again obvious in the more active lesions on the breasts, particularly the left. Sections showed the lesions to have advanced somewhat, the thickening and hyalinization of the collagen bundles being more marked. A band of inflammatory infiltrate suggested renewed activity. On October 31 the clinical condition showed no change.

Comment.—Clinical improvement, supported by histological evidence, occurred in all three patients with scleroderma. It was striking in one case, even after only one week of treatment, and, so far, it has continued. In the other cases improvement occurred up to a point, but was followed by relapse, clinical and histological.

Lupus Erythematosus

Of the three patients with lupus erythematosus two (Cases 10 and 11) were of the chronic discoid type, and another (Case 12) is best described as of subacute disseminated type.

Case 10

A man aged 39 had had a rash on his face for six years and dyspepsia for one year. Bismuth, gold, and arsenic had been used unsuccessfully for the lupus erythematosus. The lesion on September 13, 1950, was symmetrical and almost batswing, with distribution over the nose, cheeks, and malar and zygomatic regions. Both pre-auricular regions were affected, and scarring was evident in these sites. The lesions were florid, and there were some at an earlier stage on the mid-forehead and lower lip. Biopsy showed the histological changes typical of lupus erythematosus. The only other abnormality was a duodenal ulcer, the presence of which was confirmed by a barium meal. The E.S.R. was 4 mm. in one hour. The white cells numbered 6,400 per c.mm., with 1% eosinophils. The plasma proteins were normal.

In view of the duodenal ulcer, H.P.C. was given cautiously, with an initial dose of 0.2 g. on September 20. No increase of dyspepsia followed this or the subsequent administration of 1.2 g. of the drug daily. On September 27 the lesions were less florid and showed fine scaling, and the malar lesions had small areas of central and marginal pallor. A biopsy, however, revealed no appreciable change in the histological features. H.P.C. was stopped on October 4, at which time the more peripheral parts of the lesions had become paler and much less noticeable. The patient was discharged from hosptial on October 9, with the rather reserved conclusion that the

slight clinical improvement had been maintained. On October 23 the condition had reverted to what it had been before H.P.C. was given. Further biopsy showed no histological change from the state existing before treatment.

Case 11

A woman aged 40 had had a rash on her face for seven years, but was otherwise well. On the face there were two irregular pale red rather scaly patches—one on the bridge of the nose extending to the left cheek, the other, smaller, on the right side of the chin. The E.S.R. was 5 mm. in one hour, and the white cells numbered 4,200 per c.mm. The plasma proteins were normal. Skin biopsy showed the histological changes typical of chronic lupus erythematosus. H.P.C., 1.2 g., was given daily for seven days. At the end of a week, on October 26, 1950, there was on the whole little change, though the lesions were perhaps less florid and scaling perhaps a little more pronounced. On November 5 the lesions on the chin were less red and showed some scarring. There was no further change in the lesions on the cheek. A further biopsy has not yet been done.

Case 12

A woman aged 31 had developed a rash on the face nine years earlier. This had persisted, but, in addition, she had had occasional patches of similar appearance on the forearms and the tips of the fingers. From time to time she had had swollen joints and "fibrositis." The menses had lasted up to 11 days, producing anaemia with breathlessness on exertion for some time. Admission to hospital on September 25, 1950, was precipitated by pain in the right side of the chest on coughing and deep breathing, coming on four days earlier. There had been initial shivering, and cough was frequent, with a profuse thick yellow sputum. She was acutely ill, with a temperature of 102° F. (38.9° C.), dyspnoea, and cyanosis. The sputum was purulent, yellow, and contained staphylococci on culture. Physical signs indicated patchy consolidation, most marked at the right base. Rapid improvement followed the use of penicillin. On October 9, seven days after penicillin was discontinued, the skin lesions were as follows: extensive patches were present on the face, with batswing distribution, and also on the forehead; single small lesions were also present on both forearms; the colour was a deep dull red owing to considerable telangiectasia; and a moderate degree of stippled scaling was noted on the areas above the eyebrows and across the malar region. Biopsy showed the histological changes characteristic of lupus erythematosus. The leucocyte count was 9,800 per c.mm., with 5% eosinophils. The E.S.R.—84 mm. in one hour on admission—was 50 mm. The haemoglobin was 9 g. per 100 ml. Plasma albumin was 4.68, globulin 3.81, and fibrinogen 0.46 g. per 100 ml. A radiograph of the chest showed no abnormality in the lungs except a healed tuberculous focus at the left apex.

H.P.C., 1 g. daily, was given from October 10 to 19, when the amount was increased to 1.8 g. On this treatment vomiting occurred on several occasions, and the drug was discontinued on October 23. Vomiting then ceased. The skin lesions were paler, particularly on the forehead. On October 27 fever returned, though no cause for this could be found. A further radiograph of the chest revealed no abnormality and no change in the tuberculous lesion already noted. The E.S.R. was 50 mm. in one hour. If anything the face lesions were worse. A further biopsy on October 31 showed no change in the histological features. On November 6 the skin lesion on the face showed small areas of pallor at the margins and also centrally, as if some regression was taking place. Fever continued, though the patient did not appear to be acutely ill.

Comment.—All that can be said concerning these cases of lupus erythematosus is that during administration of H.P.C. the lesions were thought to be less florid and to show some slight evidence of regression; but this was not confirmed histologically, nor was it maintained.

Discussion

In our series, four patients suffering from rheumatic fever were given H.P.C. Rapid disappearance of joint pains and fever followed, confirming the findings of Blanchard *et al.* (1950b), who reported similar results in 10 patients. In neither series was a complete fall of the E.S.R. to normal associated with administration of the drug. Relapse followed withdrawal of H.P.C. in three patients of Blanchard *et al.* This occurred twice in our series, the symptoms being again, and finally, relieved by a further course of the drug once and by aspirin once. In our small series of patients treated, H.P.C. would seem to be at least as good as sodium salicylate and less toxic.

Of the two patients with polyarteritis nodosa, rapid and striking improvement in one coincided with the administration of H.P.C. While spontaneous regression is known (Miller and Daley, 1946), Herson and Sampson (1949) found that four patients who showed lesions in the fundi all died within a few weeks.

Compared with the notable results obtained in rheumatic fever, the response in scleroderma is all the more striking when it is recalled how ineffective many therapeutic agents, ranging from local therapy of various types to partial parathyroidectomy, have proved in the past. It is interesting that Bayles *et al.* (1950) have reported that even A.C.T.H. failed to produce change in the histological appearances, and only very moderate and temporary clinical improvement. Using H.P.C., we have seen one patient who showed marked clinical improvement that continued after cessation of the drug, which was given for one week only. Both from the clinical and from the histological aspects this patient was in the late burnt-out stage of the disease, and, though the papillary layer of the corium has re-formed, the reticular layer is still markedly sclerotic. It is difficult to realize that the return to normality of a layer of connective tissue less than 1 mm. in thickness should be associated with such marked clinical improvement. Our experience with the other two cases of active scleroderma, in which there was clinical and histological evidence of improvement during and shortly after treatment, followed by continuance of the disease process some weeks later, would suggest that H.P.C. is more effective in the late burned-out stage of the disease. The question whether H.P.C. causes reversion of the changes produced by the disease process or acts against the causative factors can be settled only by further study. It may be, however, that some variation in the use of the remedy is required in the active form.

Our experience with three patients suffering from lupus erythematosus was disappointing and in accord with that of Blanchard *et al.* (1950b) in two patients. It should be noted, however, that in our cases the disease was confined to the skin, while in those of Blanchard and his colleagues visceral manifestations were present. Some authorities (Baehr, 1949) consider lupus erythematosus of the skin and lupus erythematosus with visceral manifestations in addition to be different conditions, a hypothesis to which we do not subscribe.

Toxic effects were few. As reported by Blanchard *et al.* (1950b) nausea was not uncommon on the first day of treatment, but it ceased to be troublesome thereafter. In our group vomiting occurred in three patients

—in one on the first day and in two after the dose had been greatly increased. Slight looseness of the bowels, not severe enough to call for cessation of treatment, was noted in four patients. In febrile patients with concentrated urine, an appearance highly suggestive of bilirubinuria was encountered and a positive reaction was obtained with the methylene-blue and nitric-acid tests. This result was found to be a fallacy, however, as similar reactions were given with a suspension of H.P.C. in water.

Summary

A cinchoninic acid derivative, 3 - hydroxy - 2 - phenyl - cinchoninic acid (H.P.C.), has been used in a small series of patients.

Fever and acute arthritis were speedily relieved in rheumatic fever.

Results in polyarteritis nodosa were equivocal.

The most striking effects in our series were obtained in three patients with scleroderma, a disease hitherto not responsive to any known treatment. Improvement occurred in all cases, as shown by the histological examination of biopsy specimens obtained before and after treatment. The results were striking and have so far been maintained in one case, but were only temporary in two.

Very slight and inconstant improvement followed the administration of H.P.C. in chronic lupus erythematosus, but was not confirmed by histological examination.

Toxic effects were infrequent and less severe than those which may follow the use of sodium salicylate, and consisted in slight nausea, diarrhoea, and, more rarely, vomiting.

We are grateful to Professor J. W. McNee, whose personal association with the original group of workers in Johns Hopkins Hospital, Baltimore, made this investigation possible, for his kind offices in arranging the necessary supplies through Dr. F. Wrigley, of Roche Products, Ltd., and for his continued interest, help, and advice.

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The new flying-spot microscope is a topsy-turvy instrument invented by Professor J. Z. Young and Mr. F. Roberts (*Nature*, February 10, p. 231). It works backwards. Normally light passes through a specimen into the objective and eyepiece, and the observer applies his eye and scans the field of view, looking at whatever interests him in it. In the new microscope, a narrow beam of light enters the eyepiece, passes down the tube and out through the objective, to be concentrated on a tiny bit of the specimen, through which it is filtered to a multiplier photocell—which corresponds to a stationary eye which is letting the light scan the field of view for it. A very bright light from a television-type cathode-ray tube provides the light spot, which rapidly and systematically scans the whole cross-section of the eyepiece; the microscope converts this to a rapid point-by-point scan of the specimen under the objective, and the photocell, recording the point-by-point change in brightness, builds up on a further television screen a vastly enlarged picture of the specimen. This new instrument promises greater resolution, greater contrast without staining, ultra-violet "vision," and quantitative analysis of the specimen.

SIDE-EFFECTS OF CHLORAMPHENICOL AND AUREOMYCIN, WITH SPECIAL REFERENCE TO ORAL LESIONS*

BY

T. TOMASZEWSKI, M.D.Poznan, Ph.D.

(From the Department of Therapeutics, University of Edinburgh, and the Clinical Laboratory, Royal Infirmary, Edinburgh)

[WITH SPECIAL PLATE]

With the growing use of antibiotics the side-effects of treatment with these drugs are becoming more important. They are negligible with penicillin, but are of some significance with streptomycin. They are more frequent with the use of chloramphenicol and "aureomycin," though they are not of a serious nature. The subject has been briefly mentioned by various authors, but a more comprehensive study has been made by Harris (1950). As the use of chloramphenicol and aureomycin is rapidly increasing, a survey of these side-effects seems to be justified. The frequency and intensity of oral changes also give a unique opportunity of studying the mechanism of some common oral lesions. Recently Williams (1950) described 12 cases of severe oral lesions in a group of approximately 200 patients treated with chloramphenicol. Chloramphenicol and aureomycin (Tomaszewski, 1951) also cause the disappearance of the red fluorescence of the tongue which is seen in normal people and which is due to porphyrin production by bacteria.

This survey has been based on observations of 126 cases treated with these two substances in various wards of the Royal Infirmary of Edinburgh.

The Investigation

Clinical observations were made on the side-effects of chloramphenicol and aureomycin in patients suffering from various infective conditions. In each case bacteriological examination showed that the pathogenic organism was sensitive to both substances.

To investigate the immediate effect of the antibiotics on the bacterial flora and epithelium of the tongue, scrapings of the tongue were made every two or three days in all cases before, during, and for one to three weeks after cessation of treatment. The tongue was scraped vigorously with a sterile slide several times from as far back as possible, and the material ground by means of another slide to make an even layer. After heat fixation the film was stained with Gram or with other stains when necessary. In a number of cases cultures were made on Sabouraud's medium for identification of fungi and on broth and agar for identification of bacteria.

Dosage and Method of Administration.—Both antibiotics were given orally in capsules of 250 mg. Usually two capsules, sometimes more, were administered every six hours. Seventy patients (30 males and 40 females) received chloramphenicol, and 56 (32 males and 24 females) received aureomycin. The total amount of chloramphenicol given to any one patient varied from a few grammes to 96 g.; the average dose was 32 g. Aureomycin was usually administered for a shorter period, the highest total amount being 68 g., with an average dose of 28 g.

*This work was carried out during the tenure of a Whaite Research Scholarship.

Survey of Side-effects

The side-effects of both antibiotics were to a certain extent similar. There were, however, sufficient differences to justify their separate consideration. Generally speaking, the side-effects were more often seen in patients treated for a longer time and with high doses. The results are given in the Table.

Side-effects of Chloramphenicol and Aureomycin Treatment in 126 Patients

Symptoms and Signs	Chloramphenicol		Aureomycin		Total	
	No.	%	No.	%	No.	%
Dryness of mouth	28	40	22	39	50	39
Sore or tender tongue	13	18	12	21	25	20
Denuded tongue	37	52	31	55	68	54
Smooth atrophic tongue	8	11	7	12	15	11
Brown-coated tongue	7	10	6	10	13	10
Blisters of tongue	2	3	—	—	2	1
Changes in taste	6	8	3	5	9	7
Burning sensation in mouth	7	10	6	10	13	10
Red oral mucous membrane	12	17	9	16	21	16
Sore throat	6	8	4	7	10	7
Angular stomatitis	8	11	7	12	15	11
Nausea	12	17	12	21	24	19
Vomiting	3	4	2	3	5	4
Heartburn	2	3	3	5	5	4
Flatulence	24	34	21	37	45	35
Rectal irritation	9	13	9	16	18	14
Vaginal irritation*	7	17	6	25	13	20
Scrotal and perineal irritation*	1	3	2	6	3	5
Skin eruptions	1	1	1	1	2	1
Diarrhoea	3	4	4	7	7	5
Loose stools	4	5	6	10	10	7
Headaches	4	5	3	5	7	5

* Percentages calculated for appropriate sex groups.

General reactions such as drowsiness and malaise were rare. One patient complained of a burning sensation, especially in the face, after chloramphenicol. One patient noted an increased frequency of micturition and dysuria. One patient who had initially very brisk tendon reflexes showed a marked diminution of reflexes after a few days' treatment with aureomycin. Another patient complained of some visual disturbances of a few hours' duration after chloramphenicol. One patient treated with chloramphenicol developed granulocytopenia, the total white count being 2,000 per c.mm.

Gastro-intestinal Symptoms

The Table shows that gastro-intestinal symptoms occur more often during treatment with aureomycin than with chloramphenicol.

Flatulence.—The common complaint was flatulence, which occurred in 35% of cases. "The wind" troubled them day and night and caused them embarrassment, especially in general wards. In one case of extreme flatulence the patient could hardly breathe and required the passage of a rectal tube to relieve him.

Nausea.—This was less frequent than flatulence and occurred in 19% of cases. It was not very marked in most cases, but in a few instances was severe enough to cause cessation of treatment. Actual vomiting occurred in two of these cases. Nausea and vomiting could sometimes be avoided by the use of antacids and milk, or by reducing the doses or dividing them and administering every three hours. Some patients complained of heartburn, and of a "hot feeling" in the stomach.

Diarrhoea.—In some cases a transitory diarrhoea of twenty-four hours' duration occurred shortly after the starting of treatment; in a few it persisted for two or three days after treatment was stopped. More often the patients complained only of loose stools without increase in number. In a large proportion of patients the stool became odourless after a few days, and in some it continued to be odourless for a time after the cessation of treatment. Occasionally, however, the stools were more odorous than before treatment.

Rectal and Genital Changes

A number of patients complained of anal, perianal, vaginal, and vulvar irritation. It was more common with aureomycin treatment, and was especially marked in patients who had simultaneous oral lesions.

Rectal Changes.—In the more severe cases rectal changes consisted in redness, exudation, fissuring, and, in one case, slight bleeding. There is often a sharp line of demarcation at the affected perineal skin, which tends to scale. In some instances the perineum was also red and tender. The patients usually complained of a burning sensation, itching, and sometimes actual pain. In one patient treated with chloramphenicol the changes persisted for many weeks, making defaecation a painful procedure. Examination of the exudate revealed in this case, as in two others, the presence of *Candida albicans* and large numbers of desquamated epithelial cells. *C. albicans* was found in large numbers in the faeces of the patients.

Genital Changes.—In women genital changes comprised vulvitis, with some fissuring and vaginitis accompanied by a slight discharge. The complaints were usually a "hot feeling" and "itching" in the vagina and external genitalia. In men genital symptoms were much less frequent. Three complained of some scrotal and perineal itching. In one of them, in whom oral changes were very marked, balanitis and a severe erythema of the scrotum and of the adjoining parts of the thigh and perineum developed after a few days of chloramphenicol treatment.

Oral Manifestations

Oral manifestations were the most frequent structural changes encountered. Young and middle-aged persons seemed to develop them more readily than older people. They were more frequent after treatment with aureomycin and much more common in women than in men, the ratio being 2 to 1.

Dryness of Mouth.—This was experienced by 39% of the patients and was usually trivial. In some patients, however, it was more troublesome: they felt as if the tongue was sticking to the palate and as if there was no saliva in the mouth. One patient complained that he could hardly move his tongue. The dryness is similar to that produced by atropine. In order to find out whether there was a real diminution of salivation, experiments were made in a few cases before, during, and after treatment. The patients were asked to spit as much as they could into a test-tube for five minutes. It was found that there was a true diminution of salivation, the amount produced being only one-third or one-half of that before treatment.

Throat Manifestations.—Complaints related to the throat were usually closely connected with the oral dryness. The more marked the dryness the more frequent were the throat manifestations. It was usually described "as if something was sticking in the throat." In some cases the trouble amounted to actual sore throat with marked difficulty in swallowing and some hoarseness of the voice. In one patient in whom the oral changes were very pronounced the sore throat made discontinuation of the treatment necessary, and it persisted for nearly three weeks afterwards.

Tongue Changes.—Some lingual changes developed in the great majority of cases if treatment with the usual dosage lasted for any length of time, the commonest

being the loss of the normal whitish coating. The pathological changes in the tongue were by no means uniform in character. They could be divided into two main groups: (1) atrophic glossitis, the more common type; and (2) hypertrophic glossitis with brown discoloration. This sharp division could not be observed in every case, as one type sometimes changed gradually into the other.

1. *Atrophic Glossitis.*—Usually after two to three days' treatment there was a gradual disappearance of the normal whitish coating and a denudation of the dorsum of the tongue. The tongue gradually became red and the filiform papillae shorter. With continuation of treatment a fiery red, raw, beefy tongue with partial atrophy of the papillae was often seen. In some cases showing marked atrophy of the papillae the tongue developed a completely smooth surface. In rare instances the picture outlined above developed acutely. It was noted that lingual manifestations appeared more readily when the patient had been treated previously with penicillin and streptomycin. The patient's subjective symptoms usually corresponded to the degree of objective change. They consisted in a nipping sensation while smoking or while eating toast or seasoned food, tenderness, a burning sensation, or actual pain. The soreness often started at the edges of the tongue. After cessation of treatment the subjective complaints soon disappeared, but the surface of the dorsum remained red and denuded sometimes for one, two, or more weeks, after which the filiform papillae returned gradually to normal. There was often a subsequent overgrowth of the filiform papillae, resulting in an abnormally coated tongue. In some cases the fungiform papillae, especially in the front and on the edges of the tongue, enlarged during the first few days' treatment. With the relative shortening of the filiform papillae the fungiform papillae stood out well above the surface.

2. *Hypertrophic Glossitis.*—In about 10% of patients some shortening of the papillae initially took place during the first few days' treatment, but soon a brownish coloration (melanoglossia) appeared on the back of the tongue, spreading gradually over its surface. The filiform papillae often became longer and a deep brown coating covered the dorsum. In four cases a true black hairy tongue developed. Not all cases of hypertrophic glossitis showed brown coloration. In some a marked coating of dirty-white or yellow colour persisted during the course of treatment, and for a longer time afterwards.

Taste.—The lesions on the tongue often affected the sense of taste. Two patients taking aureomycin complained of a "metallic taste." Some patients taking chloramphenicol complained of a "nasty taste," a "dreadful taste," a "horrible taste," or a "bitter taste." With either drug complete loss of taste occasionally resulted—"everything tasted just the same." In consequence appetite was often lost or became capricious.

Oral Mucous Membrane Changes.—Redness of the mucous membrane of the throat often accompanied the changes in the tongue. In two instances vesiculo-papular eruptions appeared on the lips and on the uvula. In two other cases a few blisters appeared on the red atrophic dorsum of the tongue. These lesions were seen in those cases in which atrophic glossitis was of particular severity. The subjective complaints were tenderness or a burning sensation in the mouth—a feeling "as if the mouth had been burned with hot food."

Angular Stomatitis.—In 11% of cases angular stomatitis was found, always in association with severe lingual and buccal lesions. It was more frequent in women. These changes persisted for some time after cessation of treatment. In two cases microscopical examination of the desquamated epithelium revealed the presence of *C. albicans.*

Therapeutic and Preventive Effects of Vitamin-B Group on Oral Lesions.—The changes in the oral cavity and on the lips were very similar to those seen in vitamin-B deficiency, especially riboflavin deficiency. Therefore in a number of cases with very marked atrophic glossitis, treatment with the vitamin-B group was instituted in the form of the complete complex, or riboflavin, sometimes with the addition of nicotinamide and thiamin. In comparison with untreated cases recovery seemed to proceed more quickly, though not in a dramatic way. In some patients vitamin-B complex was given together with antibiotics. Although the lesions could not be prevented their intensity was definitely less than in the untreated cases. Vitamin-B complex seemed to be more efficacious than riboflavin alone.

Examination of the Tongue Scrapings

Microscopical examination of the tongue scrapings in these cases gave some interesting information. It is an easy method which permits one to follow the action of antibiotics on the microflora and on the mucous membrane of the tongue. A detailed analysis, from the bacteriological and pathological points of view, of the scrapings during antibiotic treatment will be published elsewhere. In the present paper only a short account is given.

Illustrative pictures of the typical changes occurring in the tongue during chloramphenicol and aureomycin treatment are supplied in the Special Plate (Figs. 1–4). They show the dramatic disappearance of the bacterial flora and the subsequent establishment of a fungous flora (usually *C. albicans*). In a few cases scrapings of the tongue revealed the presence of other yeast-like fungi—for instance, torula (cryptococcus)—but the type of the others has not yet been identified. It is noteworthy that the upper respiratory tract can also be completely sterilized by chloramphenicol (Gray, 1950).

In most cases the bacterial flora disappears in a few days after the start of treatment. At the same time fungi appear in increasing numbers, very often in clumps composed of mycelium and ovoid yeast forms. It is of interest to note that in some cases *C. albicans* was also found in large amounts in the sputum, in the stool, and in the urinary sediment. The normal bacterial flora usually returns in one to two weeks after cessation of treatment, but fungi may persist for some days longer (Plate, Figs. 1–4).

A constant feature in the scrapings at the height of the treatment is the large number of desquamated epithelial cells and of leucocytes, usually polymorphs. They are particularly abundant in cases with a sore, red, atrophic tongue.

Discussion

Generally speaking, chloramphenicol and aureomycin are well tolerated; nevertheless, the side-effects, though not of a serious nature, may make the use of these antibiotics somewhat difficult and unpleasant. In only a few cases are they severe enough to justify discontinuation of treatment.

The side-effects described here are not exhaustive. According to Long *et al.* (1949) and Long (1950) patients receiving aureomycin in heavy dosage may show euphoria. Harris (1950) cites certain neurological symptoms such as drowsiness, mild mental confusion, and irritability, though he points out that they may not be strictly attributable to the antibiotics. Other symptoms described by him include headache, with mild signs of meningismus, Herxheimer reactions, urinary-tract symptoms, and dermal manifestations in the form of slight generalized desquamation, fleeting urticaria,

and sunburn-like erythema on parts exposed to sunlight, slight vaginal and rectal bleeding, as well as subungual haemorrhage. Vitamin-K deficiency is suspected in such cases. Angioneurotic oedema of the face and a generalized non-pruritic erythematous skin eruption were reported by Parets (1950) after aureomycin treatment. Duverne *et al.* (1950) recorded 21 instances of cutaneous or mucosal side-effects in 50 patients treated with chloramphenicol. Hewitt and Williams (1950) described vasomotor changes in the lower extremities after chloramphenicol treatment in which the skin was mottled, cold, and moist. Vasomotor collapse has been described after chloramphenicol treatment in cases of typhoid fever (*British Medical Journal*, 1950; Stephens, 1950; Chatterjee and Roy, 1950). Spink *et al.* (1948) reported an abrupt rise in temperature after the first doses of aureomycin, connected sometimes with a picture resembling shock. This, however, could be avoided by smaller initial doses.

Volini *et al.* (1950) have described three cases of severe reversible granulocytopenia with some arrest of erythroid and granulocytic maturation in the marrow during chloramphenicol treatment. Harris also mentions a case in which the leucocyte count fell to 1,000 with only 1% of polymorphonuclear cells after six days' aureomycin treatment. Although this may occur in exceptional cases, clinical investigations show that leucopenia is not a contraindication to chloramphenicol (Smadel, 1950). A fatal case of aplastic anaemia following chloramphenicol therapy has been reported by Rich *et al.* (1950). Recently Waisbren and Glick (1950) found that in certain instances aureomycin increases the coagulability of the blood.

Gray (1950) reports that children who received large doses of chloramphenicol developed a peculiar internal ophthalmoplegia; it was characterized by rapid fatigue of accommodation on reading. He found also that, given in large doses, it may produce a "muscle fatigue syndrome," which he presumed to be due to some "blocking" of lactic acid combustion of an enzymatic nature.

Absence of bacteria may provide favourable conditions for the growth of various fungi such as *C. albicans*, which are sometimes pathogenic. Such an eventuality has already been described during penicillin treatment (Geiger *et al.*, 1945). The spontaneous occurrence of new bacterial infections during antibiotic therapy was reported by Weinstein (1947) and by Appelbaum and Leff (1948).

Fatal cases of disseminated mycosis following antibiotic treatment have been described by Zimmerman (1950). According to Farber (cited by Zimmerman) the site of entry of this mycotic invasion is usually the small intestine.

It is impossible at present to explain all the varied side-effects which accompany treatment with chloramphenicol and aureomycin. As the result of treatment there may be changes in the biochemistry of the body, especially in carbohydrate metabolism. An inhibitive action on coenzymes essential to carbohydrate metabolism has been suspected (Gray). However, Smith and Worrel (1949), who studied the interrelationship between chloramphenicol and various enzymatic systems, could not detect any inhibitory action on these systems.

It is possible that some side-effects in the intestinal tract such as diarrhoea and flatulence may be the direct result of the alteration in character and reduction in number of the normal bacteria. According to Spink and Yow (1949) gastro-intestinal complaints can be avoided by intravenous administration of aureomycin. The role of the intestinal flora in the processes of digestion and in the production of certain vitamins is not yet fully understood, but the extensive destruction of the normal bacterial flora may have considerable repercussions. An answer to this question may be obtained from the elaborate experiments which have been going on for some years on the breeding of germ-free animals (Reyniers *et al.*, 1946, 1949a, 1949b).

It is more difficult to explain the lesions in the mucous membranes of the body orifices, especially the oral cavity. The frequent association of lesions in the three body orifices suggests some close relationship between them. These lesions may result from a chemical action on the cell metabolism, but the presence of some protective action of the normal bacterial flora cannot be excluded. Absence of bacterial flora permits the establishment of fungous flora which may have some irritant effect on the mucous membranes.

Sex has a definite influence on the incidence of the mucous membrane manifestations. In Harris's cases the ratio of women was 3 to 1, and a ratio of 2 to 1 was found in the present series. Harris has suggested that an oestrogen deficiency may play some part in the production of vaginitis: he has reported the subsidence of severe aureomycin-produced vaginitis in two women after a single parenteral dose of an oestrogen.

Another point of interest is the similarity of the oral changes produced by antibiotics to those in vitamin-B deficiency, especially in ariboflavinosis. The protective and therapeutic effects of the vitamin-B group on the oral lesions in certain cases suggest some connexion with vitamin-B metabolism, the nature of which has yet to be examined.

Summary and Conclusions

A survey of the side-effects encountered in 126 cases treated with chloramphenicol and aureomycin has been made. They have been divided into general, gastro-intestinal, genito-rectal, and oral manifestations. They are more marked in women than in men and develop more rapidly in cases previously treated with penicillin and streptomycin.

The most striking changes are found in the oral cavity. Scrapings of the tongue generally show a rapid disappearance of the normal bacterial flora and the establishment of a fungous flora, usually composed of *C. albicans*. The danger of secondary mycotic invasion is discussed.

The changes in the tongue are usually those of an atrophic glossitis; less often, a hypertrophic glossitis occurs with a brown discoloration of the tongue.

The similarity of the oral changes produced by antibiotics to those found in vitamin-B deficiency is stressed, and reference is made to the prophylactic and therapeutic effects of treatment with vitamin-B complex.

I would like to express my thanks to Professor D. M. Dunlop for his interest in this work and his helpful criticism of the paper. My thanks are due also to Dr. J. Duguid, of the Department of Bacteriology of the University of Edinburgh, for his valuable assistance. The photomicrographs were prepared in the Photographic Unit, Pathology Department, University of Edinburgh.

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CARCINOMA OF THE CERVIX UTERI IN AN INFANT

BY

M. D. BABER, M.D., M.R.C.P.
Paediatrician

E. ap I. ROSSER, M.B., M.R.C.O.G.
Gynaecologist and Obstetrician

AND

J. D. O'D. LAVERTINE, M.B., B.S.
Senior Registrar, Pathology Department
Edgware General Hospital, Edgware

[WITH SPECIAL PLATE]

With few exceptions malignant tumours of the uterus in children are sarcomatous, but cases of carcinoma have been recorded from reliable sources. Carcinoma of the cervix uteri is one of the very rare forms of malignant disease which occur in childhood. Pollack and Taylor (1947), in their review of the literature on this subject, listed 30 cases of histologically proved carcinoma of the cervix which occurred during the first two decades, and added another case of their own, a patient aged 18 years. Bowing and McCullough (1941) reviewed the case histories of 3,000 patients suffering from malignant disease of the cervix uteri referred to the Mayo Clinic for examination and treatment, and found only one patient of under 20. This patient, whose history they reported in detail and who is included in Pollack and Taylor's list, was a girl aged 13. There is no doubt, therefore, that the disease is very uncommon in childhood.

The youngest authenticated case of carcinoma of the cervix on record appears to be a baby of 6 months, operated upon by Professor Franz in the Charité Frankenklinik of Berlin, and reported by Palmer Findley (1924). Findley stated that he examined the gross and histological specimens, and was satisfied that the lesion was an adenocarcinoma of the cervix. The patient died 14 days after total hysterectomy had been performed.

Bumm (1909) also reported a case of carcinoma of the cervix in an infant of 7 months, but the macroscopic description of the lesion suggests sarcoma botryoides, and no histological confirmation of the diagnosis of carcinoma was offered. Pollack and Taylor included the case in their list, but Bowing and McCullough, who also reviewed the literature since 1862, were not satisfied that the criteria for a precise diagnosis were met. Adams (1915) described an advanced case of cancer of the cervix and body of the uterus in a child of 2½ years, but the Pathological Committee of the Royal Society of Medicine, reporting on the specimen, decided that it was a teratoma. Bowing and McCullough regarded a patient of 7 years described by Glöckner (1908) as the youngest case of carcinoma of the cervix on record but appear to have overlooked Palmer Findley's report.

We have recently observed a case of undoubted cervical carcinoma in a child of 15 months. It is presented as another reminder of the importance of malignant disease as a cause of death in childhood, increasingly so since infectious diseases have become well controlled by antibiotics.

Case Report

A baby girl born on March 17, 1948, was brought to hospital on June 30, 1949, because she had passed blood-stained urine during the previous four days, and her mother had also noticed a clot in the vulval orifice on the day before admission. On closer questioning the mother said that the child had recently been straining when passing urine and faeces. She had been drinking well but not excessively; the quantity of urine seemed to be normal and there was no increased frequency of micturition. The stools had been loose and frequent two weeks previously, during a cold, but this symptom had not persisted more than a few days, and the child was thought to be well in other respects. She had not complained of pain.

She was the second child of healthy parents and was born normally at full term. Her birth weight was 7½ lb. (3.4 kg.). She was breast-fed for ten months and there were no feeding difficulties, but in spite of this she had never gained well. On admission her weight was only 17 lb. (7.7 kg.), but her parents had noticed no evidence of weight loss, and, although on closer questioning they agreed that she had been fretful and "not quite herself" for about six weeks, they had always regarded the child as healthy except for a cold two weeks before admission.

Examination showed the patient to be irritable, small for her age, and underweight for her size, though there was no real evidence of wasting. She was pale, but her haemoglobin was 76% and the white cell count was within normal limits. No abnormal physical signs were observed in the heart and lungs. The abdomen was slightly enlarged, and a firm swelling could be felt rising out of the pelvis to the level of the umbilicus. On rectal examination this mass appeared to be cystic and was thought to be distended bladder. The liver was palpable one fingerbreadth below the costal margin and seemed to be somewhat harder than normal. There was no oedema, and the veins of the abdominal wall were not prominent.

On examination under anaesthesia on June 30 catheterization was carried out with some difficulty, as the urethral meatus appeared to be drawn upwards into the vagina: 240 ml. of urine was withdrawn. The abdominal enlargement was reduced but the main mass persisted. The cervix, viewed through a "nasal" speculum, appeared normal apart from a tiny erosion around the external os. No bleeding or discharge was present. Rectal examination revealed a smooth solid pelvic tumour which was continuous with that felt in the abdomen. The whole swelling was mobile to some extent and was roughly pear-shaped, the narrow end being in the pelvis. The uterus was not identified bimanually.

Examination of the urine revealed: specific gravity, 1012; albumin, faint trace; occasional R.B.C.; sterile on culture. The blood urea was 102 mg. per 100 ml. A provisional diagnosis of pelvic kidney was made.

Catheterization was again necessary on July 1, as the bladder was distended, and clear urine was again obtained. A little sanguineous vaginal discharge was observed on this occasion. Cystoscopy on July 2 revealed diffuse inflammatory

changes in the mucosa and suggested that the bladder was lying on the anterior aspect of a pelvic mass. Neither ureteric orifice could be identified owing to oedema of the bladder mucosa. An indwelling catheter was left in the bladder, and a continuous intravenous drip infusion of saline was set up; 250 ml. of blood was also transfused.

On July 4 her general condition improved, and blood urea was now 42 mg. per 100 ml. An intravenous pyelogram demonstrated both kidneys to be normally situated, with a slight degree of pelvic hydronephrosis bilaterally.

Abdominal Section.—On July 4 a midline subumbilical incision exposed the thick-walled bladder, which extended half-way to the umbilicus. The uterus was uniformly enlarged to the size of an adult organ; both tubes and ovaries were infantile and normal in appearance. The peritoneal covering showed no abnormality, but below the utero-vesical fold the bladder was adherent to the lower two-thirds of the enlarged uterus. A small finger in the vagina established that the vaginal cervix felt hard, the induration extending up into the uterus. There was gross supravaginal enlargement of the cervix and a diagnosis of endocervical neoplasm was considered. Hysterectomy was contemplated, but was not performed because of fixation of the uterus to the bladder.

The child's condition remained unchanged for the next week except that she started to pass urine without the help of the catheter. On July 13, after further vaginal bleeding, another examination under general anaesthesia was made. The vaginal vault was now the site of a friable ulcer. After dilatation of the lower vagina some necrotic tissue was removed from the cervical area, and free bleeding followed this procedure. A blood transfusion was given and the patient was returned to the ward, but in the evening of the same day the upper end of the abdominal wound "burst" and a few coils of small intestine prolapsed. The abdominal wall was resutured, and then healed satisfactorily. Report on the biopsy specimen suggested a mixed epithelial and mesodermal malignant tumour.

The patient's condition deteriorated gradually and the abdomen became very distended and hard. Epigastric veins became prominent, the liver enlarged progressively, and ascites developed. She died on August 10.

FIG. A.—Sagittal section of pelvic organs showing hypertrophied bladder, uterus, and vagina, with tumour mass and portion of rectum.

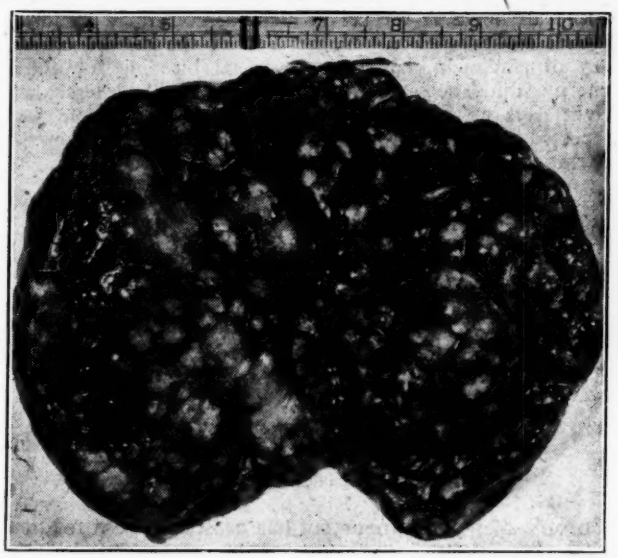

FIG. B.—Inferior surface of liver studded with secondary deposits.

Post-mortem Examination

This was performed on the day of death. The body was that of a rather emaciated female infant. The cervix uteri was greatly enlarged by a mass of hard white growth (2½ by 2 by 1¾ in.—6.25 by 5 by 4.1 cm.) which was friable and extensively ulcerated at the lower end. The body of the uterus was perched on top of the growth (Fig. A), and the tubes and ovaries seemed normal. The bladder was adherent to the front of the mass, drawn up, elongated, and somewhat hypertrophied. There was dilatation of the renal pelvis on both sides, but the kidneys themselves and the ureters appeared normal. Most striking of all was the enormous enlargement of the liver (weight 1,550 g.) due to the presence of large numbers of secondary deposits (Fig. B), many of which were cystic and contained mucoid material. No other metastatic deposits were found, and there was nothing abnormal in the cardiovascular, respiratory, alimentary, and endocrine systems. The primary growth and liver metastases were examined histologically, the former showing a poorly differentiated adenocarcinoma with more solid cellular areas (Plate, Fig. 1). The growth and invaded tissues were very closely intermingled, which was responsible for the original impression that the biopsy material represented a mixed tumour. In the liver, however, the growth was a well-differentiated papillary adenocarcinoma, in some places again showing intimate mixing with the invaded tissues (Plate, Fig. 2).

The sections were referred to the Consultant Panel in Morbid Histology of the Pathological Society of Great Britain and Ireland and to the British Empire Cancer Campaign. They agreed that the tumour was a papillary adenocarcinoma, probably of endocervical origin.

We are indebted to the Consultant Panel in Morbid Histology of the Pathological Society of Great Britain and Ireland and to the British Empire Cancer Campaign for their opinion on the sections, to Mr. R. Trevor Jones for performing the cystoscopic examination, and to Miss M. H. Shaw for the photographs.

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ADDENDUM.—Since submitting this report for publication another account of two cases of carcinoma of the cervix in the first year of life has come to our notice. This latest report, by G. P. Heckel in *Paediatrics*, 1950, **5**, 924, describes two children of 7 and 11 months of age, both suffering from

adenocarcinoma of the cervix uteri, demonstrated by histological sections. The younger died of the disease on the day of admission, having had vaginal bleeding for about one month. The second was treated by total hysterectomy eight days after the onset of vaginal bleeding, and was reported well and developing normally 21 months after the operation.

DISSECTING ANEURYSM OF THE AORTA WITH RENAL COMPLICATIONS

BY

H. BREBNER, M.B., Ch.B., M.R.C.P.

Senior Registrar, Kingston Hospital

[WITH SPECIAL PLATE]

Chronic dissecting aneurysm has ceased to be a medical curiosity, and the absence of pain at the time of dissection has often been noted (Gouley and Anderson, 1940; Flaxman, 1942). In the following case there was no history of pain until one month before death, and at necropsy a long-standing dissecting aneurysm was found.

Case Report

The patient, a land-surveyor aged 52, had always enjoyed good health. His parents were over 80 years of age. He consulted his doctor in September, 1947, because of breathlessness on exertion. There was no history of chest pain. His blood pressure was 140/80 and there was no albuminuria. He continued to lead a normal active life. On November 18, 1949, he developed acute pain in the epigastrium radiating to the left side and left shoulder and finally settling in the left loin. He was admitted to a surgical ward, where tenderness was noted in the left loin. His blood pressure was 170/110 and the urine contained albumin but no red cells. Renal colic was diagnosed; the pain ceased in a few days, and he went home. On December 6 he was admitted suffering from increasingly severe dyspnoea. There had been no recurrence of abdominal pain and he had no pain during his stay in hospital. He gave no history of chest pain at any time.

FIG. A.—Aorta at site of dissection. The normal ascending part is seen, then the slit of entry. The smooth surface of the false sac is seen just to the left of the probe at the top.

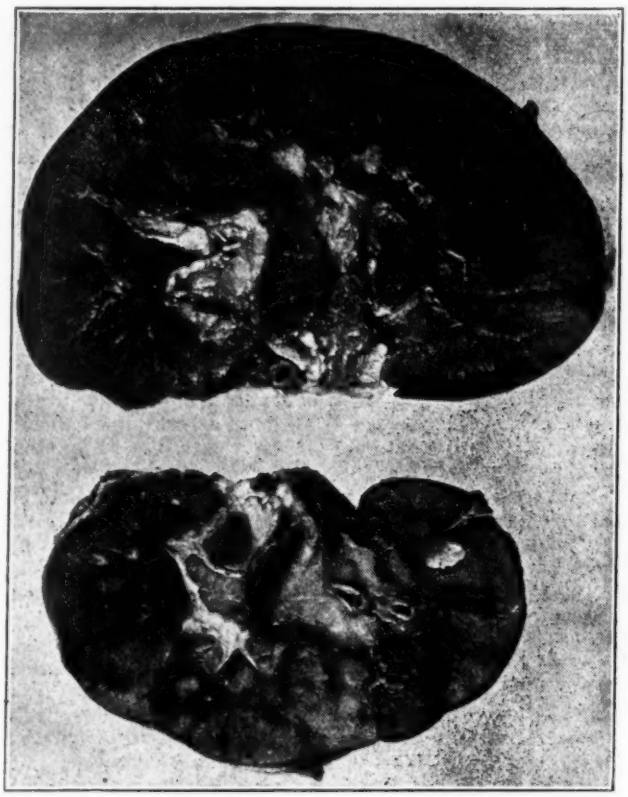

FIG. B.—Kidneys. Dissection of intrarenal branches of left renal artery can be seen. Multiple infarcts in left kidney are visible. (The left kidney is the lower in the Figure.)

On examination he was distressed, with acidotic breathing and bleeding from the lips and gums. His complexion was sallow and the mucous membranes were pale. Cardiac enlargement and gallop rhythm were present; there were no murmurs. Blood pressure was 220/150. Numerous moist rales were audible over both lower lobes, but there was no increase in jugular venous pressure nor any oedema. Abdominal palpation was negative. The fundi showed numerous exudates and a few haemorrhages. The urine contained a trace of albumin and very occasional white and red blood cells but no casts. The blood urea was 120 to 169 mg. per 100 ml.; haemoglobin, 74%; red blood cells, 4,020,000. The urinary output was maintained above 40 oz. (1.14 litres) daily, but uraemia persisted and the patient died on December 21.

Necropsy

The heart was enlarged, the right and left ventricular walls being thickened (0.6 cm. and 1.5 cm. respectively). The aorta (Fig. A) was normal up to a slit-shaped opening in the wall 1.2 by 0.3 cm. across, which lay between the left subclavian and the left common carotid arteries, and was the apex of a dissecting aneurysm. This did not involve either of these arteries. The false sac had a smooth lining and extended almost completely round the true descending aorta in its upper 3 in. (7.5 cm.). The dissection then veered more to the left side, where it continued, narrowing, to the iliac bifurcation and then along the left iliac artery to the inguinal ligament, but only a little way along the right iliac artery. No re-entrant was found. There was dissection of the left renal artery, the true lumen being flattened and narrowed. The dissection continued into the main intrarenal branches (Fig. B). The right renal artery was normal. The left kidney (9 by 5 by 4.5 cm., weight 106 g.) had an irregular shape and on section showed a number of pale yellow infarcts. The right kidney (10 by 7.5 by 5.5 cm., weight 210 g.) appeared normal. The lungs showed congestion and

FIG. C.—Section across aorta, showing splitting of media.

bronchopneumonic mottling of the lower lobes. The liver and spleen showed venous congestion.

Histology.—Fig. 1 (Plate) is a section through the aorta at the site of entry, stained for elastic tissue by Verhoeff's method. At the edge of the slit there is disruption of the media, but elsewhere the wall shows no abnormality. Cystic necrosis of the media cannot be demonstrated. (Sections were also examined after staining with van Gieson and H. & E.)

Fig. C is a section across the aorta 4 in. (10 cm.) below the site of rupture, showing splitting of the media.

Fig. 2 (Plate) is a section across the left renal artery showing that dissection has occurred along the outer part of the media in the same way as in the aorta.

Figs. 3 and 4 (Plate) are sections of the right kidney and of a non-infarcted portion of the left. Arteriolar sclerosis is present in both, the appearances being similar to those in hypertension.

Discussion

Clinical Features.—The main finding in chronic dissecting aneurysm is intractable cardiac failure, and renal symptoms are seldom prominent. Buckley (1940) described two cases with haematuria. Baer and Goldburgh (1948), who divided their cases into five clinical groups, mention the renal group as the least common. The presenting symptom in this patient was pain, presumably due to the most recent renal infarction, and thereafter the picture, although it included a slight degree of left ventricular failure, was mainly one of uraemia. The exact nature of the renal lesion was not determined before death. Unfortunately the patient's condition prevented pyelography, which in cases of renal infarction is usually diagnostic (Regan and Crabtree, 1948).

Aetiology.—Hypertension is generally accepted as a causal factor, but it is not always present in cases of dissecting aneurysm (Mote and Carr, 1942; Schnitker and Bayer, 1944). The last-named authors consider that it plays only a small part in the aetiology. In the present case the date of dissection is unknown, but it was apparently long-standing. This opinion is based mainly on the discrepancy in size between the two kidneys. The right had hypertrophied to one and a half times the average normal size, and the left had shrunk to less than half normal. These changes, particularly the hypertrophy, must have occurred over a period of months rather than weeks. The smooth appearance of the false sac was consistent with dissecting aneurysm of long standing. Since the blood pressure was normal two years before death, it is unlikely that hypertension was an important factor in causing dissection.

Renal Infarction and Hypertension.—In a period of two years the blood pressure rose to a severe hypertensive level, and retinopathy, left ventricular failure, and uraemia developed. Is it possible that unilateral renal infarction was responsible for this? It is known that renal ischaemia may cause hypertension (Goldblatt *et al.*, 1934); and Loomis (1946) produced hypertension in rats by causing renal infarction. There is clinical evidence that unilateral kidney disease in man may lead to hypertension, probably in individuals with a hereditary predisposition (Palmer *et al.*, 1940). In patients suffering from rheumatic and coronary heart disease renal infarction has caused the rapid development of hypertension (Fishberg, 1942); Wainwright, 1949). Yüile (1944) maintains that in order to prove the presence of the "Goldblatt mechanism" one must demonstrate arteriolar sclerosis in the kidney with a normal blood supply without such changes in the ischaemic kidney. He could find only three cases to conform to these strict criteria. In this case the arteriolar changes were of equal degree in both kidneys.

In the case here described there is no evidence to prove that unilateral infarction of the kidney was the cause of hypertension. It is certain, however, that renal infarction was present at a time when the hypertensive process (whatever its cause) was progressing with great rapidity, and there is little doubt that the infarcted kidney exerted an important adverse influence on this process.

Summary

A case of chronic dissecting aneurysm of the aorta is described, with dissection of the renal artery and renal infarction.

The presenting symptom was renal colic, and the main clinical finding was uraemia.

It is suggested that the infarcted kidney was responsible for the rapid progress of hypertension.

I wish to thank Dr. J. C. Lees for the pathological report and for much valuable advice on the case. I am indebted to Dr. J. W. Joule for helpful criticism, and to Dr. M. H. Fridjohn for providing details of his examination of the patient in 1947.

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Medical Memoranda

Congenital Syphilis with Acute Nephritis

The following case is presented because of the scarcity of textbook references to acute nephritis in infants suffering from congenital syphilis.

Case Report

A male infant aged 4 months 11 days was admitted to hospital on March 21, 1949. Twenty-four hours before admission the mother had noticed swelling of the infant's scrotum, followed by swelling of the feet and legs. During this period the baby had passed only a few drops of urine.

Previous History.—This was the first live birth; the mother had been delivered of a stillborn 7½-months foetus three years previously. Immediately after confinement a blood test had been taken, which she understood was "negative." Throughout this second pregnancy she had attended an antenatal clinic, but the blood Wassermann reaction had not been ascertained. The pregnancy and labour had been normal. The baby was delivered at full term and weighed 9 lb. 1 oz. (4.1 kg.). He appeared healthy at birth and remained well until he was 1 month old.

On close questioning the mother stated that from that time she had noticed that the baby lay with his legs in a "frog-like" position and did not kick. The ankles appeared to be tender when touched. About the same time a rash had been noticed on the thighs and round the anus. The rash had persisted, but varied in intensity. From the age of 2 months the infant appeared to have some nasal obstruction, but no discharge had been noticed. These symptoms had apparently not been sufficiently marked to cause the mother much anxiety. The infant had been breast-fed for the first six weeks, and thereafter a dried milk preparation had been used. He had been vaccinated 12 days before admission without any constitutional disturbance.

Clinical Examination.—The child appeared seriously ill and was very pale. His temperature was 101° F. (38.3° C.) and he weighed 14 lb. 8 oz. (6.6 kg.). There was gross pitting oedema of the whole body. Over the buttocks and inner side of the thighs there was a reddish-brown shiny rash with sharply defined edges. The vaccination lesion on the left arm was dry, with a well-formed scab. There was no surrounding local inflammation. The throat was obscured by much sticky mucopus, and there was a green discharge from the anterior nares. The lymph nodes of the suboccipital, lateral cervical, axillary, and inguinal groups were enlarged, discrete, and firm. No abnormality was detected in the heart or lungs. The blood pressure was 95/45. There was a small umbilical hernia. The liver was palpable 2 in. (5 cm.) below the costal margin. It was firm in consistency, with a well-defined edge. The spleen was palpable 1 in. (2.5 cm.) below the costal margin, and there was marked ascites.

Special Investigations.—Urine: Scanty and frankly blood-stained; albumin +++ (Esbach 8 parts per 1,000); deposit contained large numbers of red blood cells, hyaline and granular casts. Blood: haemoglobin, 56% (Haldane); white cells, 12,800 per c.mm. (polymorphs 36%, eosinophils 1%, lymphocytes 61%, plasma cells 2%); urea, 48 mg. per 100 ml.; Wassermann and Kahn reactions both strongly positive. Radiological examination of both wrists revealed bilateral epiphysial irregularity at the lower ends of the bones of the forearm, which showed a disordered reticulation and marked periosteal reaction through the length of the shafts. Similar changes were seen in the long bones of the limbs. The appearances were consistent with congenital syphilitic osteitis and epiphysitis.

The mother's blood gave strongly positive Wassermann and Kahn reactions. She was subsequently found to be suffering from asymptomatic neurosyphilis (C.S.F.: cells, 37 per c.mm.; protein, 45 mg. per 100 ml.; globulin, slightly increased; W.R., ++; Lange, 5433210000).

Starting on the day of admission, the infant was given procaine penicillin G, 1 ml. (300,000 units) daily, by intramuscular injection, for 17 days (total dose 5,100,000 units). On the twelfth day, acetarsol, 1 gr. (65 mg.) daily by mouth, was given in addition; but this was discontinued after five days because of pyrexia, vomiting, and refusal of feeds.

After a rest period of 14 days a course of "acetylarsan" was started, 0.7 ml. (0.014 g.) being given by intramuscular injection, once weekly, for 10 weeks (total dose, 0.14 g.).

For three days after admission the baby remained very ill, with pyrexia 103–105° F. (39.4–40.5° C.). Thereafter his condition improved gradually. A fortnight after admission the oedema and ascites had disappeared. There was further enlargement of the liver, but the spleen had decreased in size and the lymph nodes were less prominent. The skin rash had faded. About this time there was a further bout of pyrexia, with vomiting and deterioration in the child's general condition. This lasted for two days, and from then on there was steady improvement. On discharge, after 11 weeks in hospital, the baby weighed 17 lb. (7.7 kg.). The liver edge was palpable 1 in. below the costal margin; the lymph nodes were no longer to be felt. The urine contained a trace of albumin and occasional red cells only.

The child was seen again on July 11. He was then aged 7 months 3 weeks and weighed 19 lb. 6 oz. (8.8 kg.). He was alert, active, and of good colour. The blood Wassermann and Kahn reactions were still positive. The urine still contained a trace of albumin and occasional red blood cells.

Comment

References to acute nephritis in infants are rare. Most authors mention the occurrence of this condition in some cases of congenital syphilis but give no figures of the incidence. Espirito Santo and Mauricio Correia (1941), in their report of a case of acute nephritis in a syphilitic infant aged 3 months, estimated that about 40% of infants suffering from renal diseases are syphilitic.

The renal changes in some of these cases are typical of acute glomerulonephritis. Yampolsky and Mullins (1945), in America, reported a case of a female infant aged 2 months suffering from congenital syphilis and acute nephritis. At necropsy the kidneys showed extensive second-stage glomerulonephritis.

In the case reported here it is interesting to speculate on the part, if any, played by vaccination in the production of this clinical picture. It is widely recognized that vaccination is contraindicated in infants suffering from congenital syphilis, and it is possible that in this case the procedure was responsible for an exacerbation of the syphilitic infection, with the development of acute nephritis as a secondary phenomenon.

My thanks are due to Dr. L. Rosenthal, medical superintendent of Wakefield General Hospital, for permission to publish this case; also to Dr. C. C. Harvey, consultant paediatrician, and Dr. J. A. Burgess, consultant venereologist, for their help both clinically and in the preparation of this report.

JEAN MITCHELL, M.B., B.S., D.C.H.

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Three Cases of Carbon Tetrachloride Poisoning with One Fatality

It is thought to be worth while drawing attention once again to the hazards of carbon tetrachloride. This substance is often used for cleaning clothes, and when that is done in a small room lethal quantities may be inhaled, or it may accidentally be drunk, as is shown in Case 1.

Case 1

At about 8 p.m. a naval officer aged 30 drank about 14 ml. of carbon tetrachloride in lime juice. The carbon tetrachloride was kept for cleaning purposes in a gin-bottle from which the original label had not been removed. He realized immediately what had happened, and was advised by the medical officer on board to have his stomach washed out. This he declined to have done. He then drank a pint (570 ml.) of lime juice and water and vomited a few minutes later. Feeling better, he went on to a party, where he drank gin and beer. Next morning he got up feeling well at first, but three hours later vomiting and diarrhoea started. As this continued he was admitted to the Royal South Hants and Southampton Hospital on the second day after taking the carbon tetrachloride.

On admission he was jaundiced and his tongue was dry; his temperature was 99.2° F. (37.3° C.) and pulse 80; blood pressure 115/65. His liver was just palpable and was tender. His blood urea was 52 mg. per 100 ml., serum bilirubin 2.1 mg. per 100 ml., and serum thymol turbidity 1 unit. Measures were taken to combat fluid loss, including calcium gluconate, "casydrol," and glucose-saline intravenously. He continued to pass scanty urine, which contained red cells but no casts. His condition remained good for about 12 hours, but he then became drowsy and red in the face, following which cyanosis developed and he became delirious. The blood urea rose to 112 mg. per 100 ml. At 6 p.m. on the fourth day he was unconscious, and he died at 4.30 a.m. on the fifth day, about 104 hours after drinking the carbon tetrachloride.

The abnormal findings at necropsy were as follows: Externally there was a light jaundice. The region of the epiglottis showed fibrinous inflammation. The pyloric antrum of the stomach was congested, and the small intestine contained altered blood. The liver was large (2,970 g.) and showed passive congestion and yellow fatty change, with small areas of necrosis 2–4 mm. across. The spleen was large (390 g.), firm, and red. The kidneys were large (540 g.) and congested and their cortices were swollen. Small areas of haemorrhagic bronchopneumonia were found in the lungs, and the pleural surfaces showed numerous petechial haemorrhages posteriorly. The heart muscle was pale, and there were petechial haemorrhages, extensive at the base, and slight subendocardial haemorrhages.

On histological examination the liver was seen to be almost entirely destroyed. There was advanced centrilobular necrosis, with fatty degeneration of the cells in the less affected periphery of each lobule. The pulp of the spleen was engorged. The kidneys showed swelling and degeneration of the tubular epithelium. An occasional tubule was dilated and contained a hyaline cast. No changes were seen in the glomeruli. The changes in the liver were much more severe than those in the kidneys, and it was thought most probable that death was due to hepatic failure despite the normal serum thymol turbidity. Villela (1948) has, however, found this to be normal in 20–30% of rats and rabbits in which centrilobular necrosis had been induced by poisoning with carbon tetrachloride.

Case 2

A boiler-maker aged 23 was working in a confined space below a carbon tetrachloride spray which was being used for removing paint in a liner. It is not known for how long he was exposed to the spray. He collapsed, and when seen by the M.O. was unconscious and cold, with a poor colour and a thready pulse. Oxygen was given, and he recovered consciousness in 10 minutes, although still lacrimose, confused, cold, and photophobic. He was seen at the Royal South Hants and Southampton Hospital 50 minutes later, when his condition was quite normal. He was given calcium gluconate and casydrol by mouth. His urine was normal. Two days later his serum bilirubin was 0.15 mg. per 100 ml. and serum thymol turbidity 1 unit, and he was discharged. When seen three weeks later he was fit.

Case 3

This case was that of a girl aged 3 years. Her father had brought home some carbon tetrachloride for cleaning purposes in a Ministry of Food orange-juice bottle. The original brightly coloured label was still on the bottle, and no doubt the child thought she was helping herself to orange juice. At 6.30 p.m. she swallowed a little and almost immediately began to get drowsy, but her parents were not worried by this, as it was near her bedtime. Indeed, she was given some fish and chips, which had an immediate and most fortunate emetic effect. Her drowsiness increased, however, and she lost consciousness within three-quarters of an hour of taking the poison. She was admitted to hospital at 8.45 p.m. and given a stomach wash-out, the material from which contained a very small quantity of a volatile halogen compound. She did not regain consciousness until 12.50 the same night, having been unconscious for five and a half hours. Plenty of fluids, casinal in milk, and calcium gluconate, 20 gr. (1.3 g.), three times a day, were given, and she made an uninterrupted recovery. At no time did she show any evidence of renal or hepatic injury. The amount of carbon tetrachloride that was swallowed is not known, but her parents stated that it was not more than a thimbleful.

Comment

Sydney Smith (1936) states that alcohol given with this drug greatly increases its effect, and it seems probable that the alcohol consumed in Case 1 very soon after the drug increased its absorption in the intestines.

W. W. Woods (1946) reported three cases of fatal poisoning due to inhalation of "pyrene" fumes occurring aboard ship. In each case there was an interval of a few days between exposure and the development of symptoms. He described extensive kidney lesions resembling those seen in the "crush syndrome," but no such lesions were seen in my Case 1, which was subjected to a single larger dose than were his three cases. The typical centrilobular necrosis of the liver has often been described before, and, according to W. H. H. Andrews and B. G. Maegraith (1948), it is due to relative anoxia of the central portions of the lobules caused by swelling of the parenchymal cells of the liver.

Summary

A case of carbon tetrachloride poisoning is recorded in which death resulted from hepatic failure; reports are also given of two other cases which recovered.

Brief comment is made on similar cases reported in the literature.

My thanks are due to Dr. H. J. Bower and Dr. K. M. Robertson for permission to publish these cases, and to Dr. H. H. Gleave, who carried out the post-mortem examination on Case 1, for his help and criticism.

A. W. H. FOXELL, M.B., B.S.,
Senior Registrar, Pathological Department,
Royal South Hants and Southampton Hospital, Southampton.

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Reviews

PUBLIC HEALTH IN ENGLAND

A History of English Public Health, 1834–1939. By W. M. Frazer, O.B.E., M.D., M.Sc., D.P.H., Barrister-at-Law. (Pp. 498; illustrated. £1 15s.) London: Baillière, Tindall and Cox. 1950.

There have been noble histories of English medicine. English public health, on the other hand, has been represented hitherto by stories and excerpts, shreds and patches. Professor Frazer's book is distinguished in that it is a carefully balanced, well-written history, covering the whole of the century in which public health administration has been in existence, from 1834 to 1939. The author was well aware that public health and social welfare were so closely interwoven during this period of growth that they could not be separated without grievous loss of blood, so he wisely filled out his narrative with references to the striking social changes in so far as they influenced the development of preventive medicine. His quiet but firm emphasis on the affairs of Liverpool is honourably deserved for two reasons: the great part which that city played in the unfolding drama of public health, and the author's long and eminent service as its medical officer of health.

One of the critical tests of a history of this kind is whether it gives a fair apportionment to remote and recent past. Sir John Simon's *English Sanitary Institutions* swelled to enormous proportions as he reached his own period, but many other accounts have seemed to suggest that public health as such died with Queen Victoria, to be succeeded by a new and ill-defined socio-medical service. Professor Frazer has shown that this is not so. He gives ample credit to the pioneers—Chadwick, Simon, Farr, Southwood Smith, and their like—but he does not forget that there were men of stature in our own times. He is indeed one of the first to offer due recognition, in this setting, to the work of men like Sykes, of St. Pancras, who opened a "school for nursing mothers" in 1907, Ballantyne, of Edinburgh, who was the founder of prenatal care as a public service, and Moore, of Huddersfield, who with the enthusiastic support of his chairman, Benjamin Broadbent, did so much to give force to the infant-welfare movement. These are but a handful from a basket of names.

The chapter on national health insurance is short but in good perspective. It gives credit to the first insurance commissioners and the successful outcome of their unpopular task, under the guidance of Morant and Smith Whitaker. In his exhibition of the pattern of administrative changes from 1912 onwards Frazer shows a notable freedom from bias. In this matter his experience as an administrator has been a sure guide. The sections of the book relating to epidemic situations are of special interest, because the author has drawn from his knowledge a great variety, both of past and of recent memory. His descriptions of classical outbreaks of disease and their causes are vividly narrated; and one may suspect that these studies were of close personal interest.

This is a book to buy as well as read, for it contains excellent material for reference and has a good index. The printing is clear and the text has unusually few errors. The layout makes reading and reference easy. One may hope that Professor Frazer will include a bibliography in a subsequent edition, for he has gathered his material from many sources. This may also give him an opportunity to complete his foreground of public health administration in the post-war years.

J. M. MACKINTOSH.

HANDBOOK OF OPHTHALMOLOGY

Essentials of Ophthalmology. By Roland I. Pritikin, M.D., F.A.C.S., F.I.C.S. (Pp. 561; 215 illustrations. £3.) London: J. B. Lippincott. 1950.

There are a number of small handbooks of ophthalmology written for the general practitioner and the student, but this small volume deserves and will retain a place. It treats the subject-matter in the conventional way, preliminary chapters on anatomy and physiology and methods of examination being followed by discussion on motor and optical anomalies and a general systematic description of the diseases affecting the eye and its adnexa. A notable feature in a book of this type is the inclusion of a very useful chapter on industrial ophthalmology (visual standards in industry, injuries, first aid, compensation, malingering, and jurisprudence).

The greatest weakness of the book is its encyclopaedic nature, whereby an attempt is made to include accounts of too many conditions, some of them rare and of no great importance. As a consequence the things that matter to the general practitioner and ought to matter to the student receive too scant attention: renal retinopathy is discussed in 8 lines, diabetic retinopathy in 5, and retinal arteriosclerosis in 21, an amount of space roughly comparable to that given to such rare degenerative conditions of the cornea as Salzmann's nodular dystrophy, Koby's superficial reticular degeneration, or cornea guttata. One feature of the book is the excellence and clarity of the illustrations, which the reviewer has rarely seen equalled, the solid projection of the optical diagrams being particularly informative.

STEWART DUKE-ELDER.

ELECTROCARDIOGRAPHY

Praktische Elektrokardiographie. By Franz Kienle. Third edition. (Pp. 448; 426 figures. M. 38.) Stuttgart: Georg Thieme. 1950.

The third edition of this book on practical electrocardiography is a comprehensive survey of the subject, and the information obtainable by the electrocardiograph is reviewed. For the most part the author discusses only the three standard leads. He relegates the account of unipolar leads and chest leads to a chapter at the end. Only a few contacts are used on the praecordium, C being the letter for our CR. He does not discuss contacts at higher levels; nor does he use unipolar arm leads. This all seems rather old-fashioned. A modern book should use all the available information. Here there is no synthesis of the newer ideas with the old. All through the book much is made of the effect of exertion on the cardiogram; some interesting results are shown, but one feels rather sorry for the patients with recent myocardial infarction who had to carry out the exercises.

There are plenty of illustrations. These nearly all show the three standard leads taken simultaneously. They are quite interesting, but unfortunately in many records the tracings are so close together that they become intermingled and hard to disentangle. The tracings are thin and spidery, but it is a matter of taste whether one likes them so or not. The captions are clear and full.

There are few references; such as there are refer almost entirely to papers by the author. The work is very much the expression of his personal opinion, based indeed on a full experience. But some foreign names might be expected. Among the few noted, that of Fallot was spelt wrong. One looks in vain for the syndrome of Wolff, Parkinson, and White, until one realizes it is to be found under "Kent-Paladino." The section on the electrocardiographic changes in pulmonary embolism is scanty and no reference is made to McGinn and White. Even the names of Einthoven and Lewis were not noted. The book is rather too narrowly national in outlook.

An attractive feature is the synopses which end each section; they may be rather dogmatic, as the author admits, but they are clear and practical. There is no discussion of the modern ideas of the relationship of auricular tachycardia, flutter, and fibrillation. The significance of extrasystoles is judged largely on whether they disappear on exercise, or return after exercise, or persist throughout; for instance, in assessing the ventricular variety, 30 points are judged to be unfavourable and 2 favourable. One wonders whether they deserve all this thought (more than Mackenzie would have given them). The print is clear, and the German is easy to read.

Although some of these criticisms are due to difference of viewpoint, or assessment of importance, there is much interesting and stimulating matter, which is easily accessible and well expressed in the synopses.

TERENCE EAST.

HEPATIC TUMOURS

Tumeurs du foie. By B. Ninard. (Text, 632 pages; 40 tables. Atlas, 213 figures on 153 plates. Fr. 3,500.) Paris: Librairie le François. 1950.

This book is a copious compilation of most of our knowledge of the pathology of hepatic tumours, illustrated mainly by photomicrographic drawings done in the characteristic style of French atlases. These are excellent and instructive, but with few exceptions the magnifications are not stated—a serious defect in an atlas of this kind. The text is well arranged, detailed, and comprehensive, and in the main the pathology is orthodox and sound. Undue space, however, is given to the author's and Peyron's peculiar views on the nature of teratomata, and an unduly large number of figures (no fewer than 30) depict hepatic tissue in teratomata. Very full reference lists are given, embracing journals in many languages; these include references to most of the important British and American contributions in this field. There is no general index; one would greatly enhance the usefulness of the work.

R. A. WILLIS.

BANDAGING

Illustrations of Bandaging and First-aid. Compiled by Lois Oakes, S.R.N., D.N. (Leeds and London). Fourth edition. (Pp. 308; 370 photographs. 8s. 6d.) Edinburgh: E. and S. Livingstone. 1950.

The art of bandaging, which at one time held a prominent place in the surgical curriculum, went into a decline with the advent of the pliable gauze bandage, which requires no great skill in application. It was the reviewer's experience that very few students up for their final examination in surgery could apply a spica bandage to the shoulder with a roller bandage. At the present time the art is practised and upheld more among lay persons who learn first aid than among members of the medical profession. There has long been need for a well-illustrated manual on the subject, and in this book the illustrations are good and clear and produced on excellent glossy paper, so that he who looks may understand.

While we have nothing but praise for the part on bandaging, we should have liked to see a little more accuracy in the text dealing with shock and haemorrhage. In the list of symptoms found in shock there is no mention made of the condition of the pulse. The legend under the picture of a person pinned under a heavy beam is merely "Crush syndrome." The directions for stopping bleeding from the femoral artery are indefinite and those for dealing with haemorrhage from the dorsalis pedis inaccurate. For the control of haemorrhage from the carotid artery the first-aider is told to "place the thumbs on either side of the neck and press against the cervical vertebrae"—instructions which might produce unexpected and dangerous results. In spite of these minor blemishes we strongly recommend this manual to all first-aiders and to medical students who wish to revive a lost art.

V. ZACHARY COPE.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

Physiology of the Eye: Clinical Application. By F. H. Adler, M.A., M.D., F.A.C.S. (Pp. 709. 84s.) London: Henry Kimpton. 1950.

Yearbook of the Ligue Internationale Contre le Rhumatisme. (Pp. 155. 7s. 6d.) London: Secretary-Treasurer, Ligue Internationale Contre le Rhumatisme, The London Hospital, E.1. 1950.

Eyes in Industry. By D. A. Campbell, M.A., M.B., B.S., and others. (Pp. 234. 30s.) London: Longmans, Green. 1951.

Your Children's Feet. By C. A. Pratt. (Pp. 52. 7s. 6d.) London: Watts. 1951.

Bacterial Toxins. By W. E. van Heyningen, M.A., M.Sc., Ph.D. (Pp. 133. 15s.) Oxford: Blackwell Scientific Publications. 1950.

Progress in Gynecology. Edited by J. V. Meigs, M.D., and S. H. Sturgis, M.D. Vol. 2. (Pp. 821. 60s.) London: William Heinemann. 1950.

Methods of Tissue Culture. By R. C. Parker, Ph.D. 2nd revised ed. (Pp. 294. 57s. 6d.) London: Cassell. 1950.

My Baby is Different. By L. M. Shapiro, M.D. (Pp. 34. $1.00.) New York: Werco Press. 1950.

Traitement Mental et Culture Spirituelle. By A. L. Caillet. 5th edition. (Pp. 399. No price.) Paris: Vigot Frères. 1951.

Traitement des "Lassitudes" ou l'Inconnu Familier. By Dr. P. Bergouignan. (Pp. 137. No price.) Paris: Vigot Frères. 1951.

Pneumonie et Pneumopathies Aigues de l'Enfant. By Professor G. Mouriquand and Dr. J. Savoye. (Pp. 208. No price.) Paris: Vigot Frères. 1950.

Allergie et Traitement Sclérosant. By R. Tournay and R. Viéville. (Pp. 97. No price.) Paris: Vigot Frères. 1951.

Le Message de l'Acuponcture. By E. van Rijckevorsel. 2nd ed. (Pp. 22. 100 francs.) Paris: Vigot Frères. 1950.

La Pathologie Chirurgicale à l'Internat: Pathologie de l'Abdomen. By J.-C. Reymond. (Pp. 137. No price.) Paris: Vigot Frères. 1951.

BRITISH MEDICAL JOURNAL

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SPENS AWARDS FOR PROFESSORS

Are the Spens distinction awards to be given to professors working in the various branches of Medicine? The professoriate, aware that their consultant colleagues received their awards some months ago, await with some anxiety the answer to this question. In its terms of reference the Spens Committee on the remuneration of consultants and specialists laid stress on "the desirability of maintaining the proper social and economic status of specialist practice and its power to attract a suitable type of recruit, having regard to other forms of medical practice." This is the crux of the matter of the prevailing discontent and disquiet among professors of medicine, surgery, obstetrics, child health, pathology, and so on. They see their whole-time non-professorial colleagues in the hospital service enjoying their distinction awards, while behind the scenes an obscure conflict goes on about the payment of these awards to the professors working in the same fields of Medicine.

The profession must be concerned about two aspects of this. The first is the plain justice—or injustice—of the situation. The second is the impact of any final decision on the "power to attract a suitable type of [professorial] recruit, having regard to other forms of medical practice." Is a man, or a woman, to be penalized because he (or she) wants to pursue an academic career within the framework of the National Health Service? The difficulty, of course, lies in the fact that professorships are university appointments, and the university authorities dislike the idea that professors in the various medical subjects should receive higher rewards than, say, professors of Sanskrit or Assyrian archaeology. These authorities seem to be reluctant to have any part in the transaction, and some medical professors pursue the academic point that they should be paid by one agency only—the employing university. But if the principle is granted that medical professors should be open to receiving the distinction awards on the same basis as their non-professorial colleagues, then surely there is no reason why they should not be paid by the same agency—the Government. Not to bestow distinction awards on those occupying professorial chairs in the different branches of medicine is surely to run counter to justice and to the intention of the Spens recommendations. "In our opinion," so the writ runs, "this Committee should be empowered to recognize special contributions to Medicine in the field of research or otherwise, exceptional ability, or any outstanding professional work (other than administrative) by the conferment on selected individuals of distinction awards in three grades."

The medical professoriate are a valuable ferment in the intellectual life of our profession. Their influence is not to be measured in terms of so many elevenths of a week spent in the wards or the out-patient departments or the laboratories of the hospitals to which they are attached. In teaching, in research, in the guidance and inspiration given to those working under them they are of growing importance in the development of Medicine. It is essential not only that the present holders of chairs should be justly treated but that the younger men and women now thinking of taking up an academic career should not be discouraged. There is evidence that some of them are being so discouraged by the possibility that the outlook will be dim if they follow their inclinations. It is to be hoped that the Awards Committee will soon put all doubts at rest. One thing is certain—if the professors in the different fields of Medicine are to be debarred from receiving distinction awards, such posts in the future will cease to attract the ablest men and women in the profession.

DIABETIC STATES

It is now generally accepted that the term diabetes mellitus does not label a single disease entity but covers a group of disorders differing in their aetiology and natural history. Their only feature in common is persistent hyperglycaemia, with consequent glycosuria and the attendant symptoms of thirst and polyuria. The wide variety of techniques used to produce a diabetic state in laboratory animals has had the effect on clinical research of diverting attention from the pancreas and stimulating a search for corresponding mechanisms in human diabetes.

Experimental diabetes has its clinical counterparts in the diabetes which may be associated with acromegaly and Cushing's syndrome and in that which follows extensive disease or removal of the human pancreas. It is doubtful, however, to what extent hyperfunction of the pituitary or adrenal glands can be responsible for the development of diabetes in those who for the most part show none of the other stigmata of disease of these glands. Evidence of anterior pituitary over-activity is indirect and comes

from two clinical observations: the first, that some children grow unusually rapidly shortly before they become diabetic; the other, that women who become diabetic tend to produce large babies and to have frequent stillbirths, and that this tendency is apparent in their pre-diabetic obstetrical histories as well. It is theoretically possible that a disorder of uric acid metabolism might cause a diabetic state like that produced in rabbits by the uric acid derivative alloxan, but there is little evidence that this occurs.

Our present ignorance of the fundamental causes of human diabetes makes a comprehensive classification impossible, but there are certain well-defined clinical groups into which at least a proportion of diabetic patients can be fitted, as Dr. R. D. Lawrence pointed out in his presidential address to the Section of Endocrinology of the Royal Society of Medicine, published in this week's *Journal* (p. 373). Lawrence describes two main types: insulin-deficient diabetes, and diabetes associated with disturbances of fat storage. His study of a remarkable case of progressive lipodystrophy suggested to him that the patient's diabetic state might have resulted from an inability to store fat, and that there was a resemblance to those middle-aged obese patients who form so large a proportion of the diabetic population. In both there was a notable absence of ketosis and a marked insensitivity to insulin. Lawrence has coined the words "lipoatrophic" and "lipoplethoric" to describe these two types (though the "lipoatrophic" diabetic is a collector's piece rather than a clinically significant group). He believes that the "lipoplethoric" patient increases his, or more often her, stores of body fat until a stage of saturation is reached. That dietary carbohydrate which is normally converted to fat can then no longer enter the fat depots, and consequently "spills over" into the blood stream. This attractively simple theory has the merit of accounting for the well-known clinical observation that restricting the carbohydrate intake and reducing the weight of these patients not only rids them of their diabetic symptoms but may restore their glucose tolerance curves to normal. This has never been easy to explain on the assumption that their disorder is primarily one of carbohydrate metabolism.

Lawrence's other group comprises those patients, usually young and thin, who develop diabetes suddenly and who, if they are deprived of insulin, quickly progress to ketosis and coma. They are sensitive to insulin, and therefore liable to hypoglycaemic reactions. After months or years many of them reach a stage at which their daily insulin requirements become remarkably stable. Lawrence regards this stage as one of "absolute diabetes," the patients making no insulin for themselves and being wholly dependent on an external supply. He is careful to point out that this state of insulin deficiency may be the common end-result of a variety of pathological processes which produce hyperglycaemia sufficiently severe and prolonged to damage the pancreatic islets.

A rather different approach to this subject is made by Drs. Lister, Nash, and Ledingham, whose paper on constitution and insulin-sensitivity in diabetes also appears in this week's *Journal* (p. 376). They claim that a certain proportion of diabetics have a distinctive physical constitution which allows them to be recognized clinically as members of a single group. Their physical characteristics include a small skull, neat facial features, an ill-defined jaw-line, a skin of delicate texture, and silky hair. Though the majority are over-weight, obesity is not an essential feature. In a survey of 100 diabetic patients, Lister, Nash, and Ledingham found 37 who conformed to this constitutional type, which they call type II; 38 who appeared to have no "family resemblance" (type I); and 20 who could not be classified with certainty. They compared the insulin-sensitivity of the two main groups and found that the mean insulin sensitivity of type I was significantly greater than that of type II. However, they were unable to prove conclusively that this difference was not due to the higher proportion of obese patients in type II. This finding, and the fact that fat women resemble one another more closely than do people of normal build, cast some doubt on the significance to be attached to the results of this investigation. In order to prove this point a survey of a far larger number of patients and the use of more accurate anthropometric tools[1] would have been necessary.

SKI-ING INJURIES

Most ski-ing injuries occur in the first few days of the holiday, when the muscles are unaccustomed to the abnormal strain. Even experienced skiers will fall when exhausted and out of training. The form of the sport now most favoured by the British is downhill skating on skis in the prepared track of hundreds of others: the advocates of this type of sport refuse to walk one step uphill. The *piste* (prepared track) can quickly change in speed and quality, for a soft-snow surface can become ice in a few hours if the weather changes. In deep-snow ski-ing, away from the funicular, a different technique is needed—the speed is much slower and the turns more gradual. There is no doubt that those who climb first and thus develop

[1] See also "Growth and Form," at p. 403 of this issue.

their muscles are less prone to accidents than those who attempt only to skate downhill.

An injured skier with a serious fracture will probably develop severe shock if left for long in the open at a low temperature. In those parts of Switzerland and Austria where the first-aid service is highly organized (as in the Parsenn region) the injured skier's companion—solitary ski-ing is foolhardy—should place his surplus clothing *under* the injured person and ski on down to the nearest telephone post and ask for help. An ambulance sledge will then be sent from the top of the run to pick up the injured man. The trained men who bring the sledge usually apply a traction splint and take the casualty head first down the mountain—a method of transport which looks more dangerous and uncomfortable than in fact it is. Fortunately injuries are relatively few, considering the low general athletic standard of those who have infrequent winter sports holidays. The injury rate among those attending ski schools is said to be very low and the type of injury trivial and uncomplicated.

The most common injuries are the twist fractures —the "catching" of an edge turns the ski outwards, causing a twist fracture of the external malleolus, a spiral fracture of the tibia, or a tear of the internal lateral ligament of the knee. The hitting of a submerged tree stump or rock under the snow can cause a fracture of the femur or tibia. Most of the fractures occur in the leg below the knee. The commonly dislocated joints are the shoulder and acromioclavicular, and the clavicle is occasionally broken. Severe injuries can occur on ski hoists: the sudden jerk of starting may cause the inexperienced to cross their legs, and the leverage of the skis against the power of the hoist can lead to a severe twist of the legs. The beginner should start with short skis without steel edges. The experts prefer to have their legs, boots, and skis in one solid unit if they are to go fast. Most have the Kandahar type of binding, which is worn so tight that the skier can bend forwards, hanging on his skis, touch the ski with his forehead, and recover his upright position. The skis must follow the leg without any play or lag; only slight ankle movement is allowed, and the boots are so tight that the movement in the subastragaloid joint is eliminated. It is with these very tight bindings that very rapid descents are possible under control. The whole art of ski-ing is completely to unlearn the cycle technique of leaning inwards round corners. When the lower centres can be trained to make leans outwards instead of inwards then control is possible.

Compared with war injuries or those caused in road accidents, ski fractures are simple. The Swiss usually adopt the treatment of Lorenz Böhler and do not seem to favour the quicker methods which have evolved from war surgery. This is quite understandable, for the fractures have mostly to be treated by general practitioners in the mountain villages. The most satisfactory method for the simple fracture is reduction under local anaesthesia, then four to five days in a padded (or unpadded) cast, with the leg well raised, until all the swelling has subsided. A skin-tight walking plaster with a Böhler iron or rocker bar can then be applied. The injured skier usually wants to know whether he should go home at once or stay on. A journey in a full railway carriage with a recent fracture in an incomplete plaster is a nightmare, for if the leg cannot be kept elevated it will become very swollen and painful. If the patient can wait for a walking plaster he will have a much more comfortable journey and be less dependent on his friends. A fractured femur—fortunately a rare ski-ing accident—sets a difficult problem. The best way to treat this emergency is to apply skin traction and a Thomas splint. On about the 7th–10th day the patient should be flown home for further treatment. On the whole the economic difficulties, the journey home, and the correct preliminary treatment of the injured skier are greater problems than the final treatment and rehabilitation, for most of the patients are young and fit, and anxious to recover quickly.

Is it possible to choose a binding which is safe and thus reduce the risk of accident? The Alpina type of binding is excellent for walking uphill on skis and slow turning, but it gives such poor heel control that fast downhill ski-ing is not safe. If the ski will not follow the foot exactly at speed the control is lost and the speed becomes dangerous. The modern Kandahar binding is so tight that the skier has much more control and is therefore less likely to fall. If, however, he does "catch an edge," hit a rock, or falls forward in deep snow the strain on the leg is very great. The Ski Club of Great Britain have introduced a simple device which will pull off the heel spring of the Kandahar binding in a forward fall, but of course the trouble with any such device is that the ski may come off too easily. It is therefore essential to attach the ski to the boot with a leather strap, or the ski may disappear for good down the mountain-side—which in itself may lead to disaster. The best insurance against an accident is to have strong bones and be physically fit. Those over the age of 60 with osteoporosis should not start to ski, and parents should beware of trying to keep up with their children. Generally speaking, those over 40 do not make good learners and are accident prone, but those who have learned in their youth can go on enjoying the sport to a ripe old age.

GROWTH AND FORM

It is usually assumed that a doctor has no difficulty in diagnosing when an individual is abnormal in size or in body proportions. This assumption has little scientific basis, for information about normal variations in the size of the body and its parts is limited, and such knowledge as exists is by no means widespread. Reliable standards of comparison are needed for a variety of purposes: for example, to judge if growth, which is a good index of health in children under everyday conditions, is following a normal course or not. The task of providing these standards demands much care and specialized knowledge, and cannot be undertaken without the help of modern statistical techniques. Variation in the size of children of the same age is due to many factors, such as the socio-economic status of the family[1] and differences in the rate of physiological maturity.[2] Thus the growth of a particular child can be properly assessed only in relation to that of its own socio-economic group and after taking into account the stage of adolescence it has reached.

The average stature of our male adult population appears to be unaltered, although maximum height is now reached at about 20 years old, compared with about 26 years in the nineteenth century.[3] But children of to-day are taller and heavier than even 20 years ago. The cause of this is not clear, although an increase in growth rate, reflecting an improvement in the standard of living as well as unknown genetic factors, is probably involved. Post-war reports on Continental children show that not only were their average heights and weights lower during the war than pre-war but they reached sexual maturity later.[4] This evidence for secular changes emphasizes the need for continual practical revision of standards.

In the normally accepted sense of the word, growth ceases after physical maturity is reached. On the other hand, changes in form continue to occur because of changes in the tissues of the body, such as fat deposition. Several anthropometric measurements reflect these various tissue changes—for example, the circumference of the calf is a good measure of muscular development. In contrast, the interpretation of measurements of stature and weight is complex. Classifications of human physique have been made since the time of Hippocrates. In this field of constitutional research a recent development of general medical interest has been the technique of somatotyping.[5] The body is assessed for the development of three kinds of tissues—the viscera, or endomorphy; connective tissue, or mesomorphy; skin and nervous tissue, or ectomorphy—from standardized nude photographs, the development of each tissue being graded in one of seven groups. The standards for young adults have been fixed, and it is believed that bodies classed in the same somatotype change in the same way with age.

While measurements such as height and weight are sufficient to describe the usual massive physique of people with cholecystitis and to contrast it with the typical slender physique of those suffering from gastric ulcer, they are inadequate to differentiate the physique of the thin ulcer patient from that of the thyrotoxic patient, because the difference is in the relative amount of muscle and subcutaneous tissue. These differences have been described by means of somatotyping. Somatotyping has also, for example, made it apparent that there may be two types of physique associated with diabetes mellitus, one in those with the pancreatic form of the disease and the other in those with the pituitary form.[6]

The technical problems of growth rate and relative growth have their biological importance too, and it happens that data on human growth are particularly suitable for analysis when detailed anthropometric measurements are available. Data on relative growth have an immediate application to such environmental problems as the amount of working space a man needs in different jobs, and the scientific sizing of clothing. So far, study has been of such military problems as aircraft cockpit design and the sizing of Service clothing,[7] but there is equal scope for inquiry in domestic and industrial problems.

Thus, extended measurement of growth rates will prove useful both in experimental work and for routine clinical use.[8] Records of measurements made on the same children over a considerable period of time are essential to investigation in this field. Unfortunately such longitudinal surveys are slow and laborious. It is worth recalling that as long ago as 1904 the Privy Council Committee on physical deterioration recommended that an anthropometric survey should be set up. The number of recent papers shows the considerable research on the subject now in progress, and the Medical Research Council has just set up a Committee on Growth and Form, with Professor P. B. Medawar,[9] F.R.S., as chairman. The first need of the committee is to know what work is in progress in Britain, and in particular to discover what records of longitudinal measurements are already in existence and what is being recorded. An analysis of existing records, while it could not be expected to show all the detail which recent research has demonstrated to be important, might be worth making on its own merit, and would serve as a control for a new current survey.

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3 Morant, G. M., *Proc. Roy. Soc. B.*, 1950, **137**, 443.
4 Ellis, R. W. B., *Arch. Dis. Childh.*, 1945, **20**, 97.
5 Sheldon, W. H., *The Varieties of Human Physique*, 1940. Harper, New York.
6 Draper, G., *et al.*, *Human Constitution in Clinical Medicine*, 1944. Hoeber, New York. See also Lister, J., Nash, J., and Ledingham, U., at p. 376 of this issue of the *Journal*.
7 Morant, G. M., *Brit. Med. Bull.*, 1947, **5**, 25.
8 Wishart, J., *Supp. J. R. statist. Soc.*, 1939, **6**, 1.
9 See the letter "Research in Anthropometry" on p. 418 of this issue of the *Journal*.

TREATMENT OF SCLERODERMA

The natural course of scleroderma in both its varieties—the harmless circumscribed skin form and the generalized progressive type with visceral involvement—is so variable that great caution is needed in assessing the claims of any form of therapy. Frequently the disease, the aetiology of which is still unknown, appears to bring itself to a halt which lasts many years. Sometimes it even regresses, leaving little evidence of its ravages in the collagen of the connective tissue of the dermis.

Many types of treatment after initial promising results have in the end proved valueless: in the last five years, for example, there have been disappointing claims for intramuscular bismuth[1] in circumscribed scleroderma, and for dihydrotachysterol[2] and *para*-aminobenzoic acid[3] in generalized scleroderma. Beerman and Stokes[4] in a review of the treatment of the disease in 1949 concluded that nothing effective was known.

In 1950 Blanchard and his colleagues,[5] while investigating how some derivatives of cinchoninic acid increase the excretion of uric acid in rats, noted that these compounds, like A.C.T.H., also reduce the ascorbic acid content of the adrenals. Since this effect could not be obtained in hypophysectomized animals they concluded that the derivatives acted primarily on the pituitary, and might therefore be of value in those diseases which are benefited by A.C.T.H., of which scleroderma is one. In a further series of experiments with some 20 different derivatives of cinchoninic acid the most active compound was found to be 3-hydroxy-2-phenylcinchoninic acid (H.P.C.), which is relatively non-toxic, and its clinical trial[6] on subjects suffering from acute rheumatic fever, rheumatoid arthritis, bronchial asthma, and lupus erythematosus gave encouraging results in acute rheumatism but produced little benefit in the other conditions.

The effect of H.P.C. on another series of cases in Glasgow is reported this week by Drs. Rennie, Milne, and Sommerville on page 383. They agree with the American workers that fever and pain in acute rheumatic fever is relieved within 48 hours of starting treatment, while there is little effect on rheumatic nodules or heart lesions. They found no significant change in lupus erythematosus, and their results in polyarteritis nodosa were equivocal.

The most remarkable effect of this new compound was on three cases of scleroderma. The first, a woman of 66 with extensive scleroderma on the trunk, thighs, and legs which severely restricted her movements, began to improve two weeks after a week's treatment with H.P.C. Within one month her movements had returned to normal, and her skin apart from pigmentation was almost normal. The two other cases also showed clinical and histological improvement within two weeks of starting treatment, but a return of the sclerodermatous process within two months, and thereafter the patches remained unchanged. Spontaneous remission could account for the course of the first case, but the behaviour of the other two suggests that H.P.C. had a beneficial though temporary effect: remission followed by relapse is most unlikely to occur in the natural course of the disease. But a recent report[7] that frequent intravenous procaine injections produced considerable improvement in four cases, though procaine and H.P.C. are chemically unrelated, emphasizes yet again the difficulties of therapeutic assessment, and we must await the results of more extensive trials with H.P.C. in this puzzling disease.

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3 Zarafonetis, C. J. D., *et al.*, *Arch. intern. Med.*, 1950, **85**, 27.
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5 Blanchard, K. C., *et al.*, *Bull. Johns Hopk. Hosp.*, 1950, **86**, 83.
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7 Turner, J. P., and Schmidt, F. R., *J. Amer. med. Ass.*, 1950, **144**, 1560.

ANTIBIOTICS AND VITAMINS

On another page Foy and his colleagues describe a patient with a macrocytic megaloblastic anaemia (not pernicious anaemia). She responded to liver extract on two occasions. At a later date, in relapse, seven daily injections of 400,000 i.u. crystalline penicillin G were followed by an excellent haematological response and the megaloblasts disappeared from the marrow. This remarkable observation may find a possible explanation in the already known nutritional effect of antibiotics, an effect sometimes called the "animal protein factor" activity.

The animal nutritional experiments demonstrating this activity are several. Chickens[1] and other animals do not grow well when fed on diets solely of vegetable origin, even if all the at present known growth essentials are supplied. Something present in fish, meat, or milk is needed for optimal growth, and it is not one of the known amino-acids or ordinary proteins but a growth factor or factors, the animal protein factor (A.P.F.). If an attempt is made to replace this A.P.F. with known substances, vitamin B_{12} is found to increase the growth of animals living on vegetables only, but the improvement is only partial. Something else is required to replace animal protein completely. For chickens[2] and pigs[3] residues obtained during aureomycin manufacture are a complete substitute for A.P.F., and the excellent growth obtained is due to the simultaneous presence of aureomycin and vitamin B_{12}, and may be produced also by a synthetic mixture of these substances.[4] Other antibiotics act similarly,[4] penicillin and terramycin being as effective as aureomycin.[5 6] A few grammes of these antibiotics per ton of food cause improved (though sub-optimal) growth even in the absence of vitamin B_{12}, and fully replace animal protein in the presence of the vitamin.[4 5]

In the treatment of pernicious anaemia, vitamin B_{12} is usually ineffective by mouth, but, if given this way with large amounts of aureomycin, is said to cause remission,[7] with reasonable red cell responses, though the reticulocyte count remained low except in one patient. The results may mean that aureomycin improves human vitamin B_{12} absorption, and certainly some antibiotics given orally increase utilization of vitamin B_{12} and certain other factors in animals. The observation that injected antibiotics do not improve animal growth,[5] or vitamin B_{12} utilization in pernicious anaemia,[7] supports the hypothesis that these antibiotics prevent the intestinal flora from using up some substances of the diet and thus increase their availability to the animal.

In Foy's case, since penicillin is known to be excreted in the bile after injection,[8] large doses of penicillin given intramuscularly could become concentrated in the upper part of the gut in amounts like those present in successful animal feeding trials, and lead to improved utilization of dietary essentials. If this is so then oral penicillin

1 Hammond, J. C., and Titus, H. W., *Poult. Sci.*, 1944, **23**, 49, 471.
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3 Cunha, T. J., *et al.*, *Arch. Biochem.*, 1949, **23**, 324, 510.
4 Stokstad, E. L. R., and Jukes, T. H., *Proc. Soc. exp. Biol., N.Y.*, 1950, **73** 523.
5 Coates, M. E., *et al.*, *Biochem. J.*, 1951, **48**, Proc. xii.
6 Whitehill, A. R., *et al.*, *Proc. Soc. exp. Biol., N.Y.*, 1950, **74**, 11.
7 Lichtman, H., *et al.*, ibid., 1950, **74**, 884.
8 Abraham, E. B., *et al.*, *Lancet*, 1941, **2**, 177.

in smaller doses, as used in animal diets, should have therapeutic activity. This speculation is made all the more attractive when it is recalled that macrocytic anaemia is often associated with nutritional disturbances in peoples whose diet is deficient in food of animal origin. But we need to know more about the effect of antibiotics on the intestinal flora before an adequate explanation can be formulated on these lines.

DEEP FREEZE

Although in one sense the effect of cold on the bladder is widely appreciated, it now appears that in its literal application there remains much on which to speculate. In a recent experimental study McDonald, Taylor, and Heckel[1] have investigated the results of rapid freezing of areas of the bladder wall in dogs with a view to the possible adoption of this technique in the treatment of vesical neoplasms. Utilizing the method of rapid expansion of carbon dioxide to produce local cold of −49° C., they were able, with a comparatively simple apparatus, to freeze selected portions of the bladder through a temporary suprapubic cystotomy opening. Such sites on subsequent examination showed clearly demarcated areas of complete cellular death extending throughout the thickness of the bladder wall but with no interruption of the continuity of the interstitial structures. Observations at intervals extending up to 56 weeks after the time of freezing showed replacement fibrosis in the muscle layers and regeneration of the surface epithelium. There was a remarkable absence of cicatricial contraction. This latter point was particularly investigated when areas adjacent to the ureteric orifice had been frozen, and in none was there any evidence of subsequent ureteric obstruction from fibrosis. Encouraged by these findings, the authors applied the rapid freezing technique in the treatment of advanced vesical growths in three patients, but the results were difficult to assess owing to the prognosis being bad in two cases because of the extent of the disease. There were, however, no immediate adverse complications. The mechanism of producing cell death by freezing is imperfectly understood, and factors such as the rate and depth of freezing and the water content of the cells may affect the result. In general the authors considered that malignant tissue may be slightly more susceptible, but it seems probable that any differential advantage accruing from this may be offset by the difficulty of conveying adequate cold to the depths of an infiltrating neoplasm. It is clear that in this respect deep freezing possesses many of the disadvantages of irradiation therapy.

"MEDICAL AND BIOLOGICAL ILLUSTRATION"

Last week a new quarterly periodical was added to the number already published by the B.M.A.[2] It contains some remarkable full-page photographs—of collagen fibres taken through the electron microscope at a magnification of 45,000, and the calcified costal cartilages of a woman aged 101. It also has many smaller photographs and diagrams, including a number in colour, and the articles briefly treat of such subjects as methods of recording foot deformities, the visual principles underlying the making of animated diagram (cartoon) medical films, the design and production of pamphlets to instruct patients, and the life of Sir Charles Bell (1774–1842), who was artist as well as surgeon-anatomist.

It is the declared purpose of the editorial committee to provide something more than a place for reporting new graphic and photographic techniques. They intend to study the educational possibilities of visual aids, to discuss their history, and at the same time to provide a series of first-rate illustrations which can be used directly in teaching, either in the epidiascope or on a wall chart. The appeal of the new journal is therefore not only to hospital photographers and medical artists, of whom there are several hundred in Britain, but also to teachers of all kinds, whether in medical school and university and secondary school or at evening first-aid classes. It should have a wide appeal to medical men, whatever their professional bent.

There has been increasing interest in the last 15 years in the use of films in teaching, in photographic recording of patients, and in the development of good diagrams. Thanks to the Cubists, new kinds of pictorial symbolism have often replaced the conventional graph and table, with gain in clarity and visual interest. Medical artists and photographers are growing in number and importance, forming a new profession. Yet the problem has still to be solved how best to make use of visual aids, especially films, which all too often have proved expensively uninstructive. It is much to be hoped that the new journal will help in this. It will have to be on its guard against the diseases of technical triviality and hotchpotch information which lurk in those subjects which are also hobbies. Its eyes are certainly open, but it perhaps wants to bring its objects and aims into clearer focus.

This new venture in periodical journalism will be watched with the highest interest. Under wise guidance it should have a strong influence on all those who make and use illustrations of whatever kind in teaching and in papers published in medical and biological journals.

Sir William Douglas, Permanent Secretary of the Ministry of Health, is to retire from the post on the completion of changes to be made there as a result of the creation of a separate Ministry of Town and Country Planning. He will then be succeeded by Mr. J. M. K. Hawton, at present Deputy Secretary, whose place will be taken by Mr. I. F. Armer, now Under-Secretary. Sir William Douglas, who is aged 60, succeeded Sir John Maude as Permanent Secretary in 1945, having been Permanent Secretary of the Ministry of Supply for the previous three years. During 1937–9 he was Secretary of the Department of Health for Scotland. Mr. Hawton became Deputy Secretary at the Ministry of Health in 1947, having entered the Ministry as Assistant Principal 20 years previously. Mr. Armer was chairman of the Welsh Board of Health in 1940–4.

[1] *J. Urol.*, 1950, **64**, 326.

[2] *Medical and Biological Illustration*, 1951, **1**, No. 1. Published four times a year by the British Medical Association, Tavistock Square, W.C.1, at 10s. 6d. an issue or 2 guineas a year.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

ORTHODONTICS: DENTAL DEVELOPMENT IN CHILDREN

BY

LILAH CLINCH, B.A., F.D.S. R.C.S.

Consulting Orthodontist, Children's Hospital, Birmingham

Orthodontics has been defined as "the study of the growth and development of the jaws and face particularly, and the body generally, as influencing the position of the teeth; the study of the action and reaction of internal and external influences on this development; and the prevention and correction of arrested and perverted development."

Normal Development

The relation of the upper to the lower jaw is changing from an early stage of foetal life. It has been shown that an initial projection of the lower jaw gradually decreases and is succeeded at fourteen weeks by a projection of the upper jaw. At birth the gum pads are in approximately the same relation to each other as the teeth will be later. Malrelation or malformation of the jaws can often be seen in the newborn.

As the teeth erupt they should occlude in a definite cusp-and-groove relationship; and, as the teeth must erupt where the bone is, the occlusion will be abnormal if the jaws have not grown normally. Growth is at its maximum in the early stages of development, and the foetus grows more rapidly in the month before birth than at any other period. During this month the foetus increases its weight by 1% each day. During the first year of post-natal life the baby grows rapidly, and H. A. Harris has called this the first "springing-up" period. From 1 to 5 years the child grows more slowly and more steadily. This is the first "filling-out" period. From 5 to 7 there is a second springing-up period. It is at this stage that the child increases rapidly in height, begins to lose his temporary dentition and to cut his permanent teeth, becomes thin and long in the leg, and exchanges the chubbiness of babyhood for the characteristic family countenance.

Between 7 and 11 or 12 the second filling-out period occurs, with steady growth as its characteristic, to be followed by the third springing-up period at puberty. The changes associated with the rapid growth of puberty give place to the third and last fiilling-out period as puberty is succeeded by the period of adolescence.

Factors Affecting Normal Development

The provision of a favourable environment is of great importance in preventing maldevelopment of the jaws, and this is necessary before the child has any teeth and many years before he is seen by a dental surgeon. Breast-feeding aids the normal development of the jaws. Therefore when an infant is bottle-fed it is important that the teat should be such that the child can obtain the milk only by a pushing and munching movement of the mandible, similar to that of breast-feeding. Whether the child is breast-fed or bottle-fed he should be suckled sitting upright; if a child is held horizontally the weight of the breast or bottle presses back the chin and prevents the normal forward growth of the mandible. Thumb- or finger-sucking or the use of a dummy can have the same effect, and if there is a tendency to malformation of the jaws the maximum damage is likely to occur from these habits.

Premature Loss of Deciduous Teeth.—It is most important that the deciduous teeth should not be lost prematurely. The deciduous molars are not replaced by their permanent successors until the age of 9 or 10, and their early loss can be a serious matter from the point of view of mastication and nutrition. In addition, their premature loss inhibits the growth of the surrounding bone and allows the posterior teeth to drift forward, thus closing the spaces for the permanent teeth, which are therefore unable to erupt into their normal positions. Early conservative treatment of the deciduous teeth is essential if they are to be preserved; these teeth have a larger pulp chamber and a correspondingly thinner layer of enamel and dentine to protect the pulp than the permanent teeth. A small cavity exposes the pulp; therefore the teeth must be treated when the first sign of decay is observed. Unfortunately the teeth are often neglected until the child is 5 or 6 or is suffering pain. By then there may be no alternative but to extract the painful tooth. But only teeth which are painful or the seat of an abscess should be extracted. Treatment with silver nitrate will help to harden caries and prevent pain in many teeth in which the decay has extended too far for the insertion of a filling. Black and discoloured teeth may be quite healthy; they will masticate food and direct the growth of their permanent successors quite as well as those of normal colour.

Sucking Habits.—Habits in children are a potential cause of deformities of the jaws, as has already been mentioned. It is best to discourage the starting of habits. But when thumb- or finger-sucking is established, and particularly when there is a tendency to malformation, it is desirable from the orthodontic point of view to stop the habit. It is usually not difficult; a friendly talk from the doctor explaining the reasons why the habit is harmful is in many cases all that is necessary and is far more effective than constant remindings from parents. A co-operative child who is trying to stop the habit but who finds the thumb goes into the mouth during sleep can be helped by a collar slipped up over the elbow at night. The child should make the collar (corrugated cardboard stuck with sticky paper is all that is necessary) and he should put it on himself. Children should not be forced to stop these habits but should be given all possible help to do so. It is also possible to construct plates which make sucking habits uncomfortable; but if a plate is worn it is important that the child should not know that it is there to stop the habit; it will be tolerated more readily if it is worn to "straighten the teeth," as indeed it is.

Faulty Lip Posture.—A child whose lips are apart at rest should do exercises to alter their static position. If there is no nasal obstruction a mouth-screen worn at night outside the teeth and under the lips and cheeks

makes mouth breathing impossible and is very effective in correcting faulty lip posture.

Arrested Bone Growth.—Harris has shown that there is arrest of growth in the long bones at times of ill-health in childhood; even the specific fevers can leave traces in the long bones, which can be seen as lines of arrested growth in radiographs. The general health of the child has a considerable effect on bone growth. This is particularly important in the case of the jaws, which are the only bones in the body to contain pegs of predetermined size: the teeth can fit into their correct positions only if the bones of the jaw have reached their full dimensions. If the jaws are abnormally small the teeth will be crowded.

Types of Deformity

Orthodontic malformations are of three main types: first, subnormal jaws in which the alveolar bones are too small to accommodate the teeth correctly but in which the jaws are in normal relation to each other; secondly, a posterior relation of the mandible to the maxilla; and, thirdly, an anterior relation of the mandible to the maxilla. It is also possible to find cases in which the maxilla is either anterior or posterior to the normal, but these occur less frequently. The commonest malformation in this country is a posterior position of the mandible (Fig. 1); this is very often congenital, but it can be produced by thumb-, finger-, or lip-sucking, or by any interference with the normal forward growth of the bone. If forward growth does not occur a horizontal space develops between the upper and lower incisors; soon the lower lip occupies this space and the pressure exerted by it tilts the upper incisors forward, resulting in the typical "rabbity" mouth. The initial fault is in the mandible, and this must be corrected if a permanent improvement is to be obtained. An abnormal relation of the jaws may be complicated by having either alveolus subnormal in size; for instance, it is usual to find a very small maxilla associated with an anterior position of the mandible, as in the Hapsburg family.

When to Inspect

The teeth should be examined from the age of 3 years, and if any sign of decay is observed fillings should be advised. It is often found that after an illness the tendency to caries increases. This may be because of a general lowering of resistance, but it can be due to inadequate oral hygiene during the illness. Any obvious malrelation of the dental arches should be noted. At 5 years of age there should be spacing between the deciduous teeth. During the second springing-up period between the ages of 5 and 7, malrelation of the jaws can be recognized from an examination of the facial contours and profile. It is not necessary to look into the child's mouth to discover the malformation; it can be seen in the shape and position of the jaws. As the child gets older the condition gets worse, because normal function is interfered with. The lips lie in abnormal positions, and this again may add to the abnormal pressure on the bone.

Prevention of Deformity

The care of the general health is the most important factor. Local factors, such as normal suckling, the stopping of harmful habits, and the care of the deciduous teeth, aid in preventing deformities. Although the only definite knowledge of the aetiology of malformations is in those cases in which the cause has been purely local, there is little doubt that in most cases the causative factors begin to affect development either before birth or within the first two years of life.

Treatment of Established Deformity

Indications for Active Treatment.—Treatment is indicated if there is a malformation which interferes with the facial appearance, mastication, breathing and lip-function, or the health of the dental tissues. The first of these is given priority of place because it is the most obvious, but many factors must be taken into consideration before deciding whether or not a particular case shall be treated. The occlusion of the teeth, the condition of the teeth and gums, the appearance, the general health and physique of the patient, and the ultimate prognosis without treatment must all be considered.

Age for Treatment.—If a deformity occurs in the deciduous dentition which will prevent the normal eruption of the permanent teeth it should be corrected at this stage. For instance, the upper incisors may become locked behind the lower ones (Fig. 2). The upper incisors can be moved forward before their roots are absorbed, and the permanent teeth will move with them and erupt in their correct positions. In cases with subnormal dental arches expansion should be carried out before the roots of the deciduous molars are absorbed, as these roots will carry

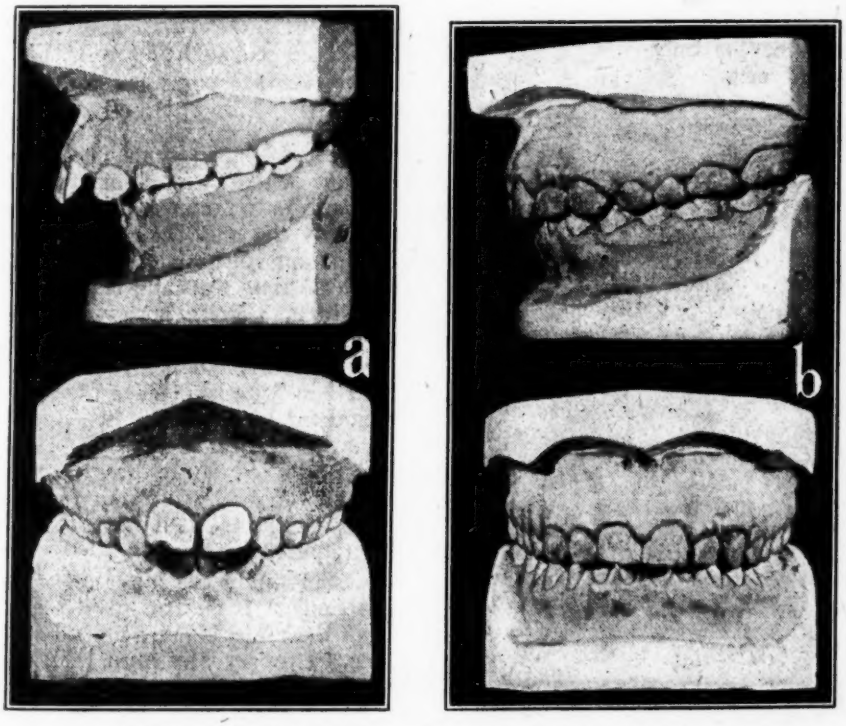

FIG. 1.—"Rabbity mouth": posterior position of mandible. (*a*) Before treatment; (*b*) same case two years after removal of appliance.

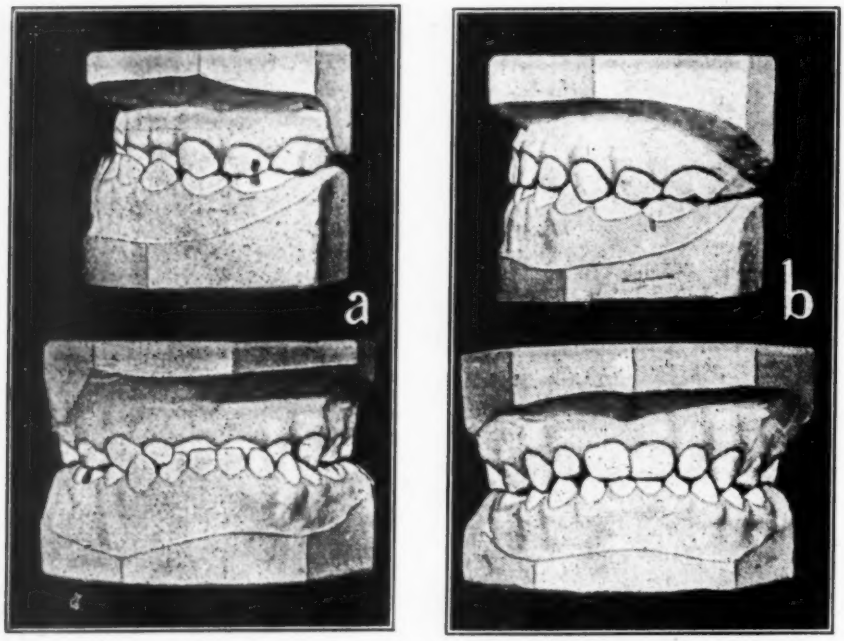

FIG. 2.—Upper deciduous incisors locked behind lower incisors. (*a*) Before treatment; (*b*) after treatment.

the permanent teeth with them (Fig. 3). Therefore 7 years of age is the best time to start treatment. Abnormal relation of the upper to the lower jaw can usually be corrected if the treatment is started early. Although good results can be obtained even in the treatment of adults, the prognosis is better and the wearing of appliances much less troublesome in young patients.

Methods of Treatment.—It is often very difficult to decide whether teeth should be removed to make space where the arches are subnormal. In young patients the contour of the face is the best guide. A face which is already thin and peaky may be permanently ruined by the interference with bone growth after removal of teeth. In older patients extraction may be the only method of obtaining space for overcrowded teeth.

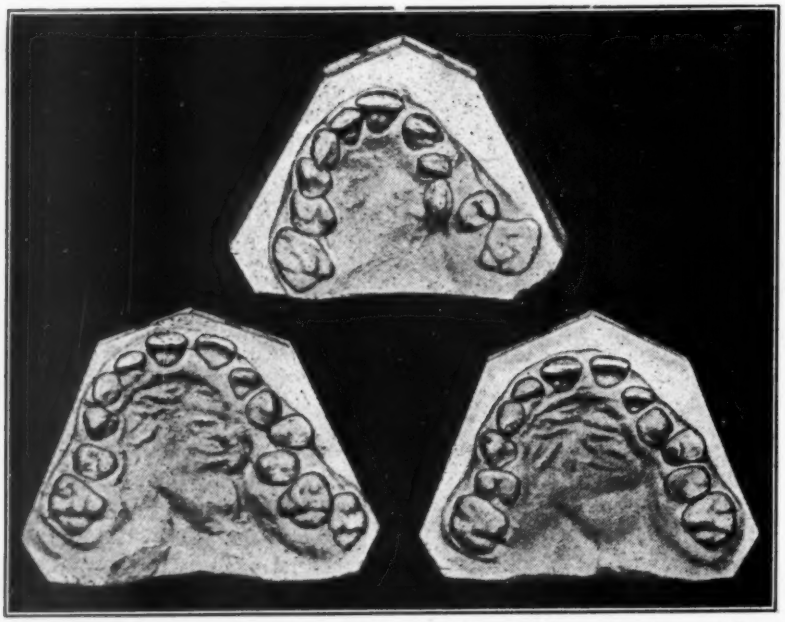

FIG. 3.—Expansion of maxillary arch in a patient with a cleft-palate: before, during, and after treatment. (Published by permission of the *British Dental Journal*.)

Use of Appliances

Appliances are divided into two groups: (1) fixed—not removable by the patient and not under his control except to a very limited extent; and (2) removable—that is, removable by the patient and more or less under his control. Removability or not of an appliance is a point on which as a rule little weight should be placed in making a choice; efficiency is of far greater importance. However, some children cannot be relied on to wear a removable appliance, although they will wear a fixed one without the slightest thought of interfering with it.

FIG. 4.—Fixed appliance used to correct deformity shown in Fig. 2.

The essential requirement of an appliance is that the pressure used to move the teeth should be so weak that no permanent damage is done to the teeth or the surrounding tissues. Fixed appliances have an advantage in that weaker springs can be used, as they are protected from stress and strain by the main arch or framework of the appliance; if the appliance is fixed to the teeth the child is unlikely to fiddle with it. Efficient springs of steel wire 0.15 to 0.35 mm. in diameter can be used on these appliances; the framework of 1-mm. wire is attached to molar rings cemented to the teeth (see appliances shown in Figs. 4 and 5). The springs are adjusted before the appliance is fixed and can be left without further adjustment until the teeth have moved into the required positions.

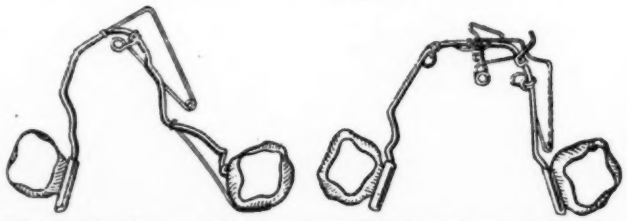

FIG. 5.—Appliances used to correct deformity shown in Fig. 3.

The design of springs on removable plates is similar to that on fixed appliances, but the range is more limited and as a rule a stronger wire must be used. The framework of plates is usually an acrylic base. Some plates can be worn at night only; this has obvious advantages, but their use is limited chiefly to

altering arch relationship, and many forms of malocclusion cannot be corrected by them.

With most children few practical difficulties occur during the wearing of appliances in the home, particularly with fixed appliances, which two days after insertion are often forgotten. When appliances are worn extra care must be given to tooth cleaning, and this will need supervision until a satisfactory routine is established.

AN EXPERIMENT IN SOCIAL REHABILITATION

BY

DAVID F. THOMAS, M.B., B.Ch., B.D., Ph.B. B.A.O., F.R.C.S.

Orthopaedic Surgeon, Scunthorpe and District War Memorial Hospital and Lindsey County Council

In the last decade "rehabilitation" and "physical medicine" have rightly taken their place among the means advocated for the restoration of the sick to full health, but there is a danger that their recent prominence is fostering an outlook which lays undue emphasis on the restoration of physical fitness only and too little on the restoration of moral or mental fitness. Many rehabilitation centres attached to hospitals differ only in degree from the physiotherapy department from which the patient has graduated to them. Except for an increase of his physical fitness they add nothing to the effort to restore him to a normal life.

In a long illness one must make many mental adjustments to a new life of dependence and passivity. After such an illness readjustment to former activity in normal society does not readily follow even if physical fitness is completely recovered, and the readjustment becomes all the more difficult if there is a permanent residual disability. Restoration of a normal attitude to self and to society must therefore be a major concern in the full rehabilitation of a patient and must take equal place with the restoration of physical fitness. This readjustment to normal society despite physical handicaps may conveniently though perhaps crudely be termed "resocialization."

Scunthorpe Remedial Recreational Club

This club, which began in 1949, has as its aim the resocialization of the sick or injured by the activities of a club of which they hold temporary membership. Its development has been slow and limited, but I believe its existence and its activities are worth recording both to stress the principle that proper balance should be maintained in rehabilitation between the physical and mental and to show what can be done with the existing facilities of a town to put this principle into practice in a specially effective manner.

The activities of the club are centred on two weekly meetings. On one night of each week there is a two-hours session at the gymnasium of one of the local schools. Here, under the guidance of a subcommittee, pastimes, games, and handicrafts are organized. These include ordinary children's games and other games such as volley ball, deck quoits, and table tennis; "group work"—for example, Greek dancing, choral speaking, and free art; handicrafts—for example, sewing and rug weaving, embroidery, lamp-shade making, and Barbola work. Sometimes a film is shown. There is no regimentation. It is essential that the atmosphere should be that of a "club" and not that of an "institution." The organization and teaching of the different games, pastimes, and handicrafts are carried out by voluntary workers.

For one hour on another night of the week one of the tanks in the local swimming-baths is put at the club's disposal. There is a rota of voluntary helpers from the local swimming club and other local organizations to teach swimming and to help the disabled in the water. Equipment is provided for swimming lessons and water games. Tea and cakes are served after the swim. These swimming sessions constitute, of course, an excellent form of physical rehabilitation for many of the patients, particularly those affected with anterior poliomyelitis. One has only to see the transformation effected in the disposition of some patients who have had many months of physical treatment at the local hospital to believe that the real value of this swimming session lies in its ability to banish the "patient" complex and restore the self-confidence to carry on, even though disabled, in a normal way in normal society.

For both these sessions of the club the local ambulance service provides transport for those who are unable to travel by public transport.

Club Membership

It is the intention that membership of the club should be temporary; that the club should act only as a training ground or bridge between the hospital environment and normal society. Thus, on reaching a certain stage of proficiency, members are transferred from the Remedial Recreation Club to ordinary membership of the local swimming club and cease to attend our swimming sessions. In this way the club achieves its object of resocialization. It would only defeat that aim if membership were allowed to continue indefinitely.

In addition to the two sessions described the activities of the club have included also the organization of outings to the seaside, and to the theatre, pantomime, and ballet, often with the assistance of other local voluntary organizations.

The club is open to all patients who, having been vetted by the committee, are regarded as likely to benefit from its activities. Though most members have orthopaedic disabilities, it is not the intention of the club to confine membership to such cases, nor is membership restricted to hospital patients, but includes any suitable case sent by a general practitioner. The Table shows the cases at present attending the club.

Disability	Children (Under 14 Years)	Adults	Total
Anterior poliomyelitis ..	14	12	26
Congenital deformities ..	5	2	7
Muscular dystrophies ..	2	1	3
Postural deformities ..	3	2	5
Infantile spastic plegia ..	4	—	4
Fractures and amputations..	1	2	3
Tuberculous arthritis ..	1	—	1
Osteomyelitis	—	1	1
Paralysis agitans	—	1	1
Disseminated sclerosis ..	—	1	1
Total	30	22	52

The success which the club achieves is not something that can be submitted to statistical analysis and demonstrated scientifically. It can be shown only by the changes effected in the individual cases, and these changes are often of an intangible nature.

A young lady aged 27, with infantile paralysis of nine years' duration affecting both upper and both lower limbs, lived in a rather remote village. She got about in a wheel-chair, but remained almost entirely confined to the house. She had very little interest either in her own personal appearance or in anything else. One month after joining the club she had her hair "permed" and began to use make-up. She has been to dances in a wheel-chair; she can now swim after a fashion, and has been to swimming galas and polo matches; she has travelled with her sister by train to the Infantile Paralysis Fellowship Lantern Hotel at Worthing and has spent a holiday there; she has now started a small business of her own.

Aims and Policy

The general policy of the club is controlled by a committee which includes members of the hospital medical staff, general practitioners, the lady almoner at the local hospital, the secretary of the local swimming club, the secretary of the local disablement advisory board, the assistant county youth organizer, members of the physiotherapy department of the local hospital, the medical officer of health, a representative of the local ambulance service, representatives of the patients themselves, and representatives of other local voluntary organizations. The patients who are members of the club are particularly encouraged to take part in the organization and administration of the club's activities as a means to developing self-confidence and initiative. The club is a public body with an annual general public meeting. It is supported solely by voluntary contributions.

The present scope and future development of the club are greatly hampered by the absence of a single establishment in which all its activities could be conducted. The achievement of a club house with full facilities is the main practical problem with which the committee is at present concerned.

I am sure that an organization of this nature has its place in modern medicine. It is essential that it should be maintained as a voluntary concern free of all regimentation. Only thus can it convert the passivity of the patient in hospital life into the activity of fellowship in normal social life.

Summary

Rehabilitation as generally practised is too restricted. The restoration of a patient to normal or as near to normal as is physically possible must take account not only of his physical condition but equally of his mental attitude.

The Scunthorpe Remedial Recreation Club is an example of an experiment in the practical application of this concept of social rehabilitation. In its present form it serves also as an example of what use can be made of facilities already existing outside a hospital.

Anyone interested may obtain information about the detailed organization of the club from the honorary secretary, Miss E. Jackson, lady almoner, the Scunthorpe and District War Memorial Hospital

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Antivivisectionists received a defeat in the United States in last November's elections, according to the *Journal of the American Medical Association* of January 13. The people of Los Angeles voted 357,393 to 261,699 to permit unclaimed cats and dogs in the city to be used for experimental purposes, while in Baltimore a proposal to prohibit the scientific use of stray dogs was defeated by 160,000 to 38,000.

MINISTER OF HEALTH AT ROYAL COLLEGE OF SURGEONS

A large number of distinguished guests were entertained by the Royal College of Surgeons at its Hunterian festival dinner on February 14. Mr. HILARY MARQUAND, M.P., the Minister of Health, in proposing the toast of "The College," said that in that assembly, which was more than 150 years old, he was in some degree representing the new among the old. He had newly undertaken a very important and responsible duty, and he was approaching it with the greatest caution. He felt, as anyone in his shoes was bound to feel, that he had in front of him a great opportunity. When Mr. Lloyd George established the Ministry of Health and made his friend Lord Addison the first occupant of the chair, he had had, as he often declared, a new and inspiring idea, the idea of the Minister of Health. Unfortunately, such was the arrangement at that time and since, the new function was connected intimately with the old function of the president of the Local Government Board. He was sure Lord Addison would agree that he had not always had the opportunity he would have liked—to have been a real Minister of Health. So he personally looked forward with anticipation and hope to the new opportunity of making his department a real "Ministry of Health"; and of being able to concentrate for the first time, in a way that no other Minister of Health had been able to do, on the work of maintaining, sustaining, and improving the health of the people, with the help of those who were skilled professionally.

The point of view of the Ministry and the Government was simply summed up in the phrase: "You and I are 'the State,' we constitute it, we maintain it, we use it to defend ourselves, why should we not use it to help ourselves?"

After referring to some points in the history of the College Mr. Marquand went on to say that what had interested him most was to read of the big developments that they had made, especially recently, in the prosecution of research and education. He had spent a great part of his life in education in the university world, and he did understand what research meant and what principles and austerity must govern the prosecution of research. For his part, if at any time he was called on in any way to ensure that medical research should be carried on, he gave them his assurance that they would have his fullest possible co-operation.

He was impressed with the close connexion in post-graduate work between the College and the countries of the Commonwealth. They had reached out not merely to encourage other members of the Commonwealth to follow their standards, or attain their levels in examination, but they had reached out to help and encourage them to build up hospitals for teaching and treatment.

He did thank the College for what it did. He reminded them that they had great privileges; they had a high position of repute and esteem in society; and he was sure that they felt, as he did, that position begot obligations. They had, however, in addition, history and the inspiration of great tradition and high standards, and they tried to combine them with the achievements of modern science and education for the benefit of mankind. He admired what they had done: he appreciated its value and highly esteemed the spirit in which they undertook those tasks. He did not think he went too far if he said, when thinking of obligations, that they and he could co-operate, recognizing the necessity of privilege and at the same time recognizing that that produced duty and obligation. If he was right in interpreting that that was the way they felt, then he thought they should never have anything but the most temporary and trivial disagreements between them.

Stewardship of the College

Sir CECIL WAKELEY, President of the College, replying to the toast, said that it was pleasant to be able to welcome to the College a new Minister of Health so early in his term of office, and he thanked him most sincerely for the very friendly terms in which he had proposed the toast. On that day it was the duty of the President to render an account of the Council's stewardship of the Hunterian tradition. It had been the acquisition of the Hunterian collection that had first made the College primarily a scientific institution, and, although the collection had suffered severe loss during the war, it had been their first case since the war to rehabilitate it. To Professor Wood Jones, who had lavished so much care and ability on its restoration, had been given their highest award of merit—the Honorary Medal. Now, as never before, the museum was helping postgraduate students in their pursuit of knowledge, and the library, closely linked with the museum as it had always been, was also unprecedentedly busy and frequently packed to capacity with readers.

It was with regard to Hunter's famous advice to Jenner, "Why think? Why not try the experiment?" that research was carried on in their departments of anatomy, pathology, and physiology, at the Buckston Browne Farm, and in the Ophthalmological Research Unit. The College was fostering more research work within its own walls and elsewhere than at any previous time. It was pleasant to record the appointment of Dr. David Slome as Professor of Physiology and Bernhard Baron Research Professor in the College. He must also mention the close liaison and cordial relations existing between the College and the Imperial Cancer Research Fund, and the award of the Honorary Medal of the College to Professor W. E. Gye, in his last year of office as Director of the Fund and Professor of Experimental Pathology in the College.

Last year the College had celebrated its one hundred and fiftieth anniversary. It had been a proud day for them when Her Majesty the Queen accepted the Honorary Fellowship and graciously attended in person to receive the Diploma and sign the Roll. His Royal Highness the Duke of Gloucester had honoured the College by his presence at the one hundred and fiftieth anniversary dinner, a memorable occasion when congratulatory addresses had been received from many universities, medical schools, sister colleges, and learned societies—tokens of esteem for which they were truly grateful.

Overseas ties had been further strengthened by Sir Reginald Watson-Jones, Sims Commonwealth Travelling Professor, by holding in the College International Congresses of Otolaryngology, Ophthalmology, and Radiology, and by the award of Honorary Fellowships to Professor Nager, of Zurich, Dr. Bailliart, of Paris, and Professor Vail, of Chicago.

He then came to two of their activities which went back far more than 150 years—examining and teaching. Hospitals in increasing numbers were seeking the recognition of the College as training-grounds for the Fellowship and willingly raised the conditions of tenure of their house appointments to the level demanded by the College. The recent examination policy had been a departure from an isolationist attitude. Not only had overseas examinations been continued, but Fellows of the College from Australia had examined in both Primary and Final Fellowship Examinations, and reciprocity of Primary Fellowship Examinations had been established between the College and the Royal Australasian College of Surgeons. There had been considerable interchange of examiners for the primary examination for Fellowships in Surgery in the British Isles, and they now had an agreement for reciprocity of Primary Fellowship Examinations between their College, the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, and the Royal Faculty of Physicians and Surgeons of Glasgow. That reciprocity would take effect between some, and probably all, of the corporations concerned on June 1.

Institute of Basic Medical Sciences

Teaching by means of lectures and demonstrations had been an activity of the College or its forebears since at least 1540, and professors of anatomy were appointed by the Corporation of Surgeons as long ago as 1767. So it was on very deep foundations that the present structure of postgraduate education had been built. In February, 1945, a short course of lectures on anatomy and applied physiology had been given; this had now expanded into a vast programme of courses in the basic medical sciences, in surgery, and in allied specialties including anaesthetics and dental surgery. In this field also they had avoided isolationism, and many of their lectures on specialist subjects were arranged in collaboration with the appropriate Institute of the British Postgraduate Medical Federation. In the basic medical sciences the College had unquestionably become the postgraduate centre in this country, and in their teaching of these subjects they were seeking an alliance with the University of London through the British Postgraduate Medical Federation. To this end they had formed an Institute of Basic Medical Sciences, and had appointed as dean Professor Geoffrey Hadfield, their Sir William Collins professor of human and comparative pathology. This institute would cover postgraduate educational work in anatomy, applied physiology, and pathology, and would also include the department of pharmacology which it had been recently decided to establish. When these arrangements had come to fruition they would be properly equipped to perform what was at the same time one of the oldest and newest functions of the College.

The New Buildings

When they considered the future, their thoughts turned inevitably to building plans, with which was coupled in gratitude the name of Lord Webb-Johnson. The plans for the new buildings were well advanced: there would be a Great Hall, and over it new museums, the gift of the Wellcome Trustees. There would be the Nuffield College of Surgical Sciences, to take about 100 resident students, and there would be substantial additions to their lecture-rooms and laboratories. Subject to the granting of the necessary licences, they would start building this year. The financing of these great projects was not without its anxieties: they had received magnificent gifts of £250,000 from Lord Nuffield and £80,000 from the Wellcome Trustees. The restoration fund had now reached a total of £210,000, thanks in great part to the generous and loyal response of the Fellows of the College. He was glad to say that the Members also had now responded to an appeal and were contributing in large numbers. Nevertheless, they were still some £400,000 short of their needs for building alone.

Professor ERNEST FINCH, vice-president, proposed the toast of "The Guests." As a Hunterian experiment, he subjected each guest and his activities to an inspection, beginning with the Archbishop of York, and said why he thought John Hunter would have approved of their being invited to be present.

The Reply of the Archbishop of York

The ARCHBISHOP OF YORK, responding to the toast, said he would like to thank and congratulate the speaker who in such a worthy and kindly speech had proposed the health of the guests. There were, he thought, two or three matters on which they would all agree. First, they had all had a wonderful dinner. They had also in that fine company found ample assurance in feeling that they could drink anything that they desired without any possible danger of unfortunate after-results. He had felt that at a medical dinner and he thought with equal confidence he could feel it at a surgical dinner. Then there was another reason. Recently he had been at a banquet, and during a sudden silence one of the guests was heard to remark, "The best of a show of this kind is that we need not wash up afterwards." On that occasion they had neither got to wash up, nor had they got to put away afterwards. But there was still

another reason why they were grateful for the invitation. All of them had a great admiration for and deep sense of gratitude to the profession.

Mr. PHILIP MITCHINER, vice-president, in proposing the toast of "The Hunterian Orator," gave a vivid and amusing account of Sir Max Page's adventurous and distinguished career. Those who had been privileged to listen to his exposition of the life and work and aims of John Hunter would agree that he had taken, as the 86th Hunterian Orator, a worthy place among those great men who had preceded him.

Sir MAX PAGE, the Hunterian Orator, replying to the toast, said that the origin of the commemorative office was obscure, but that distinguished surgeon and philosopher, Wilfred Trotter, having consulted the authorities, had come to the conclusion that a habit of primitive man was responsible for the business, not unconnected with the idea that he acquired the spiritual and physical qualities of his hero by eating him. He had to confess that his own sensations had been more those of the sacrificial victim of the celebration. The commemoration of the life and work of John Hunter was still worth while, for his activities formed an example and a stimulus to the medical men of the present generation.

SOUTH AFRICAN VIEW OF THE CANCELLED JOINT MEETING

Below we reprint the leading article from last week's *South African Medical Journal* (February 17, p. 108) on the cancellation of the Joint Meeting.

Our readers will by now be aware of the distressing situation resulting from the cancellation of the Joint Meeting arranged between the British Medical Association and our own Medical Association this year.

As soon as the possibility of certain passport difficulties was appreciated, the Association tried to make certain that none of our colleagues who might accept the invitation to join us in a scientific gathering would be exposed to the risk of any inconvenience. The Minister of the Interior was advised that application for entry into the Union from members of the British Medical Association might come from colleagues of various races, colours, and creeds. He was asked to give an assurance that these facts in themselves would not debar our overseas colleagues from entry into the Union for the purpose of a purely scientific gathering.

It will generally be agreed that it would be unreasonable for any Minister of any Government to give an unqualified permission in advance for the entry of non-Union nationals into the Union. It was, however, reasonable to anticipate that the Minister might have couched his reply in such a way as to reassure officials of the British Medical Association and ourselves that no application would be refused on the mere ground of race or colour or creed; nor, we feel sure, would the British Medical Association or ourselves have disagreed with the Minister if he had qualified an assurance with the reservation that in individual cases political but not racial considerations might necessitate the withholding of the necessary permission. It is well known that in many parts of the world citizens have had their freedom of travel curtailed, but the reasons have always been ideological.

The Minister's decision, of course, is a political one. In our view every attempt should have been made to eliminate purely political factors in the consideration of a request based on the need to organize a purely scientific function devoid of all partisan political principles.

Our distress is the greater in view of the virtual cultural and scientific isolation which has now been imposed upon us, through no choice of our own, at a time when the interdependence of nations for the common scientific good has never been greater and more necessary.

The Minister's decision may also have consequences much more far-reaching and distressing than he may have contemplated, because any international conference, even if it is innocuously devoted to purely scientific matters, now becomes virtually impossible if it is to be convened in South Africa.

The British Medical Association is an Association affiliated to our own Association, and we fully understand the principles which motivated our colleagues in their decision to cancel the Joint Meeting for this year. We deplore the occasion which required them to do so and which falls so far short of our heretofore proud traditions of South African hospitality.

Nova et Vetera

SUCCESSFUL PRACTITIONER

The Life of Dr. John Radcliffe (1652–1714), Benefactor of the University of Oxford. By Campbell R. Hone, M.A.(Oxon). D.D.(Lambeth). (Pp. 150; illustrated. 15s.) London: Faber and Faber. 1950.

What qualities make a successful and fashionable practitioner? These were so eminently exhibited by Dr. John Radcliffe that to enumerate them would go far to picture him and to outline Bishop Hone's cheerful little book. As with all professions, the will to succeed comes first. To these add a good degree of technical competence, a pleasing presence, tolerance of fatigue, judgment of character, the clinical instinct ripened by experience, good heart, good sense, and a certain healthy indifference to the opinions of others. All these were possessed by Radcliffe, who, like many other successful practitioners, had more practice for his warrant than warrant for his practice. Yet he was a somewhat over-robust and cynical figure, noticeable for these qualities even in his own over-robust and cynical age.

Radcliffe amassed an enormous fortune. His biographer is perhaps too charitable—as befits his cloth—in assuming that this was mostly made from fees. In the year of the South Sea Bubble, which burst in 1720, there were other altars than those of Aesculapius on which a physician, confessedly avid of gain, might light his fires. Aesculapius leans contemplatively upon his serpent-clad caduceus, but Mercury, the god of trade, brandishes his aloft. The character of Radcliffe's monetary accounts, which are now available and are partly here recorded by Bishop Hone, suggests that his great fortune came largely from skilful investment in these money-mad years.

Radcliffe added neither to the science nor to the art of medicine, but he did have some qualities which made him approach to greatness, though he ever kept a respectful distance therefrom. If he was often mean, he could be also magnanimous, and occasionally even nobly so. A man of humble birth and with no patrimony, he fought for his own hand and fought successfully; but, if he was a snob, he was never a hypocrite. He had neither wife nor child, so that he could afford to be—and he was—a conspicuous giver during his life, and he thoughtfully and wisely disposed of what he could not take with him to the grave.

His monuments are certainly noble. Among those at Oxford, with which Bishop Hone is chiefly concerned, are the Radcliffe Infirmary, the Radcliffe Camera and Radcliffe Library, the Radcliffe Medical Travelling Fellowships, and the Radcliffe Observatory, which is still one of the most striking eighteenth-century buildings in Oxford, though its work is now done in South Africa. These will long keep him in memory, which this attractive little book sweetens by removing some of the libels that are still repeated in the anecdotes of him. He was certainly no semi-illiterate braggart, though he was hardly a wit, as wit is reckoned nowadays. He was a sensible, shrewd practitioner who followed the best practice of his day. He reduced bleeding, he gave relatively simple prescriptions, he insisted on fresh air—all novelties in his time. Above all he followed the Hippocratic advice, "At least do no harm." He had quite enough classical knowledge to read Terence: *Adprime in vita esse utile, ut nequid nimis*—"The most important thing in life [as in medicine] is never to overdo anything." Many patients had good cause to thank his *nequid nimis* in his own day, and in our day many of those who study the sciences, medicine, and the arts have good cause to be grateful for his large and lavish hand. Like most human beings he was full of contradictions, on many of which this book throws light.

CHARLES SINGER.

Correspondence

Homoeopathy

SIR,—The Royal London Homoeopathic Hospital has been established, I understand, for a hundred years. Presumably it is well equipped with laboratories and *x*-ray apparatus for the investigation of disease. It seems a pity that some physician or surgeon on its staff does not publish figures and statistics for some disease treated solely by homoeopathy. Scientific investigation requires exact figures. Without them discussion is waste of time.—I am, etc.,

Eastbourne. S. A. MCSWINEY.

SIR,—May I add a few notes on this subject?

The homoeopathic principle is made use of, although the therapist seldom realizes it, and may even deny it, when x rays are used for the treatment of carcinoma; vaccines for microbial infections; spectacles for headaches; artificial sunlight for dermatitis, classified or unclassified; and in a large number of prescriptions which are just regarded as "good tips." The discovery that carcinomatous cells are more vulnerable than normal ones, or any other "rational" or "scientific" explanation, does not alter the fact that the thing which is being used as a remedy is capable of causing a lesion similar to the one for which it is being used as a cure. The minute dose is not an essential part of homoeopathy.

Homoeopathy is not suitable for all types of minds. What proportion of your readers would spend time inquiring if the rheumatism is better or worse or uninfluenced by movement, time of day, wind or rain, and what the patient's reactions are to company, noise, sympathy, and similar stimuli? Yet all these, and more, may be necessary to select the correct remedy. It is much simpler to give salicylates. I have spent as much as two hours selecting the remedy, chosen the wrong one, and repeated the process twice before getting the correct one, in my younger days, but when the right one was found the results were worth the trouble. It is not true that homoeopathy cannot make the patient feel worse. The remedies are similar to vaccines in some ways, when used in the highest dilutions, and the occurrence of a negative phase in the local symptoms, provided it does not extend to the constitutional ones, is a good sign in a chronic case.—I am, etc.,

Wiltshire, near Blackburn. A. HERBERT GREGSON.

SIR,—I was for 50 years an allopath. I have known the broad principle of homoeopathy since my earliest days of medical studentship. I have known that homoeopathy does not make any specific claim to treatment of diseased conditions of the human body. *Similia similibus curantur* means similars are cured by similars. This is observed in the "cure" of inflamed parts by the application of heat, as in poulticing, or indeed by many forms of counter-irritation.

Sidney Ringer, in his fine book *Materia Medica and Therapeutics*, advocates the exhibition of vin. ipecac. in minimum doses of one drop, say, every half-hour to stop vomiting; half-drachm doses to cause vomiting. I think it is now 60 years since I read in Lionel Beale's fine book *Minor Ailments* that ¼ gr. of hyd. subchlor. placed on the tongue of the sufferer every hour for 24 hours would abort an acute tonsillitis. More recently I read somewhere, perhaps in the columns of our own *Journal*, of the treatment of seasickness by doses of vin. ipecac. and pure chloroform, one drop of each in some simple vehicle. I myself sent to the *Journal* a note on a hitherto inveterate case of "rheumatism" whose subsequent freedom was obtained free, gratis, and for nothing from the bites of white or red ants. The patient was a woman who fell asleep on a hot day at a picnic resort, the name of which I cannot for the moment recall. My note was published. Most of our modern treatments, even down or up to the smallest doses, are examples of the homoeopathic claim: *Similia similibus curantur*. I have exhaustively tried all the remedies mentioned here for many years, with anything from 75 to 90% of "cures."

In one of Professor Greenfield's (Edinburgh in the 'nineties) papers I read of the observed facts of the calcification of tuberculous glands in cows. I always gave my tuberculosis cases small doses of calcium. It occurred to me that the same treatment might secure the drying up of eczema and ulcus cruris, and I put my cases under the calcium regimen—this may not be homoeopathy nor yet allopathy, but it paid me and my patients handsome dividends!—I am, etc.,

Chelsea, S.W.3. A. R. EATES.

SIR,—Professor Lambert Rogers's somewhat explosive reply (February 10, p. 298) to Dr. Oliver's simple question tells us little about homoeopathy, but, incidentally, quite a good deal about Professor Lambert Rogers. It matters not at all what was said about homoeopathy in 1861 by Oliver Wendell Holmes, who was much more interested in pungent literary expression than in the patient investigation of scientific truth. A little study of elementary logic would reveal to Professor Rogers that the *argumentum ad verecundiam* is no argument at all.

It is quite irrelevant to refer to certain erroneous ideas on pathology held by Hahnemann; many of the pathological conceptions held by his distinguished contemporaries make amusing reading to-day. The principle of similars is not affected by any ideas on pathology, old or new, any more than Newton's contributions to science are affected by the rather fantastic notions he held on other subjects.

It is easy to say that infinitesimal doses do not act. The appeal of homoeopathy is to experiment, and both experiment and experience prove and confirm that they do act.

As to whether homoeopathic physicians are knaves or fools, I suggest that the incidence of knavery in the Faculty is no higher than in the profession as a whole, but would concede that, if homoeopathy is the stupid nonsense which Professor Lambert Rogers says it is, then the charge of foolishness can fairly be maintained. Finally, who but a fool would spend time and trouble working out and individualizing cases when there is always phenobarbitone?—I am, etc.,

Liverpool. F. B. JULIAN.

SIR,—One of the chief stumbling-blocks to the ready acceptance of homoeopathic therapeutics is the common idea that its basis is merely giving small, or infinitesimal, doses of ordinary drugs or remedies. It is not the crude pharmacological action that is used, but the peculiar form of biophysical energy which is liberated from any substance when its material content is attenuated by the special process of "potentization," which involves step-by-step succussion and "dilution." This is quite different from dilution in the ordinary sense. By this process, drug-energy is liberated and stored in the "diluent" as a specific form of energy which retains certain characteristics of the original crude substance, just as a radio wavelength will reproduce the original effects of its specific transmitter. High potencies—that is, extreme attenuations—are beyond the range of chemical analysis, yet they are effective clinically, and can be detected physically by means of the emanometer; much recent research on this fascinating subject has been carried out by Dr. W. E. Boyd, of Glasgow, and others.

Potency energy, if correctly applied by the physician, will stimulate the patient and restore his disturbed balance, which has shown itself by symptoms or signs of "disease." The selection of the remedy is done according to the law of similars (known to Hippocrates and Paracelsus) by matching as closely as possible a drug-picture obtained by "provings" on healthy human beings with the disease-picture in the patient. The homoeopathic approach is essentially an individual one: the sick person is treated in a specially detailed way, and is not given a routine remedy based on the name of his disease.—I am, etc.,

Harrogate. B. CLIVE NICHOLSON.

*** This correspondence is now closed.—ED., *B.M.J.*

Status of Naturopathy

SIR,—Dr. R. E. W. Oliver's inquiry with regard to homoeopathy (January 27, p. 192) includes a disparaging remark in respect to naturopathy. This is uncalled for. Naturopathy is concerned with the fundamental conditions of life upon which health and disease largely depend. A week earlier you published a letter by Dr. Hector W. Jordan (January 20, p. 137) with the title "Health, Diet, Soil," and on February 3 (p. 250) a letter from Dr. N. C. Penrose under the same title. These deal with two aspects of naturopathy (diet and soil), while air, sun, water, and exercise are others. We, the undersigned, are a group of practitioners who are applying all these principles in our practice with convincing results. We urge our colleagues to apply naturopathy in their own practices, since in so doing they will be striking at the real roots of much of the ill-health of civilized man.—We are, etc.,

B. P. ALLINSON. ELSE F. MEYER.
E. K. LEDERMANN. CYRIL V. PINK.
GORDON LATTO. EDWARD MOORE.
DOUGLAS LATTO.

London, W.1.

Whooping-cough Prophylaxis and Treatment

SIR,—It seems a pity that whooping-cough vaccine is not more used for the treatment of this distressing disease. Prophylactic treatment has deservedly caught the fancy of the practitioner—I think via American research—but "hamaphylaxis," treatment of the already existing infection, has not, or so it seems from inquiries I have been making.

In 1907 Professor Bordet kindly sent me a culture of his then newly isolated *B. pertussis*, and I inoculated with a vaccine made therefrom a series of 1,000 cases at Great Ormond Street and St. Mary's Hospitals, greatly increasing the dose from the ultra-cautious suggestions of Professor Bordet to about the present-day dosage. It proved a great success for both prevention *and* treatment, and I frequently received the fervent thanks of harassed mothers and nurses for quiet nights regained.

I then got interested in other immunological work, and did not go back to whooping-cough when the first world war was over. I am writing thus belatedly in praise of this vaccine treatment because I recently came across a bad case of whooping-cough in a woman of 45 which seems to have been cleared up by it very satisfactorily.

She had had a very bad cough for some time, but on December 29 last her cough became so bad that she was quite unable to sleep and remained entirely sleepless for ten days in spite of drugs. That was her exact story: and it is certainly true that, being a hard-working woman in the day-time, she had become quite hysterical from fatigue and lack of sleep through the coughing.

I verified that it really was whooping-cough by the cough-plate technique, getting thereby a plate spattered all over with the dewdrop-like colonies of pertussis. As the cough seemed to be getting worse and worse, I gave a tentative dose of vaccine of 250 million organisms, and 24 hours later she got sound sleep at last, for the cough had stopped; two days later it began again slightly, but after a dose of 500 million it promptly stopped again. It started very slightly once more, so I gave a dose of 900 million—and she has had no cough since. These three doses occupied just one week. I then tried another cough-plate, and careful examination could not disclose one single pertussis colony. As a placebo I gave one further dose of 1,000 million, but I think it was not needed.

It cannot be guaranteed that every time small curative doses of a pertussis vaccine are given we shall get an equally dramatic result; but, from what I recollect of my whooping-cough cases before the first world war, this vaccine is always worth considering. I found it extremely bland, producing little or no reaction.

There is another aspect. Whenever an infection is brought to an end by immunity (either by those naturally occurring auto-inoculations which for millions of years have served and saved our ancestors, or artificially by a prepared vaccine) the patient is not likely to have a second attack, because he now possesses some immunity-producing mechanism, and probably some reserve of immunity too. That is, of course, the only reason why whooping-cough occurs only once in the lives of most of us. If, however, a powerful antibiotic like "chloromycetin" is employed to end the infection summarily, then the patient is no better defended than before the attack, and may even be in a worse state for resisting a second infection. Certainly a whooping-cough patient cured by antibiotics should at once have a course of prophylactic inoculation to replace this deficiency in immunization. These antibiotics are a magnificent life-line to be thrown to those struggling in deep waters; but, if our patient is liable to tumble in again, he had better perhaps be taught to swim out again by immunization.—I am, etc.,

London, W.1. JOHN FREEMAN.

General Health and Allergic Response

SIR,—At a meeting of the British Association of Allergists held recently the subject was brought up by Dr. Cohen of pruritus in an adult resulting from eating apples. It was stated that the patient in question only sometimes suffered from pruritus after eating apples, and that at other times apples appeared to exert no ill effect. Mr. Francis mentioned that he believed that many clinical allergic reactions only appeared when the patient was generally in a poor condition and unfit. This, of course, may explain why so many men with allergies—for example, asthma, hay fever, vasomotor rhinitis, etc.—lost their symptoms and were quite fit while training in the Army, only to experience return of their old symptoms when they were back again in civilian life.

In association with this, I would like to mention a case of my own in which a man of 70 suffered from pruritus when he ate apples. If he stopped eating apples, the pruritus stopped. If, however, he continued eating apples and testosterone propionate was administered at the same time, he did not suffer any more from pruritus. Is this, therefore, a case of curing or ameliorating a specific disease by improving the general health of the patient, without even treating the specific condition? I think it is, but I would welcome other comments.—I am, etc.,

Liverpool. A. E. BERNSTIEN.

Chicken-pox and Chloramphenicol

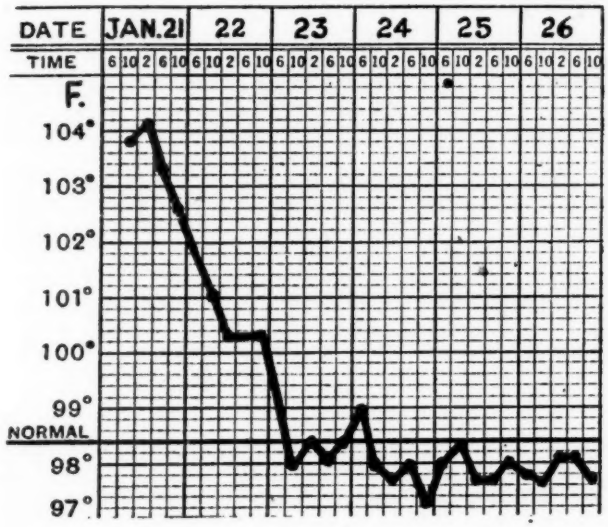
SIR,—I should like to report a severe case of chicken-pox in which a dramatic recovery followed treatment with chloramphenicol.

On January 3 a boy aged 6 developed chicken-pox that ran a very mild course. He had a slight temperature for two days, there were very few spots, and he had almost recovered in a week.

On January 21 the father, aged 35, developed a temperature of 104° F. (40° C.). He was covered from head to foot with a vesicular rash so extensive that there was hardly space to put a farthing on clear skin. On the face, which was swollen and bloated, the vesicles were almost confluent. The soft palate, hard palate, pharynx, and post-pharyngeal wall were also covered and the uvula oedematous. Most of the vesicles contained blood. The mouth and pharynx were so inflamed that he could not drink, although he felt very thirsty. There was even difficulty in swallowing saliva. The eyes were glazed and sunken, the face red, the whole body steamed with fever, and he looked alarmingly ill.

I saw the patient within half an hour of the appearance of the rash and immediately gave him four capsules of chloramphenicol and prescribed two capsules every four hours afterwards. He was at no time awakened during the night, so that he had no chloramphenicol from about 10 p.m. each night until 6 to 7 o'clock the following morning. Local treatment to the rash consisted of frequent applications of calamine lotion.

The following day the whole picture had changed. The temperature had fallen to a little over 100° F. (37.8° C.), he had lost his toxic look, had ceased sweating, had slept fairly well, and was prepared to joke ruefully about getting "a kid's complaint." He was able to sit up in bed and read the paper. Within 24 hours he could swallow in comparative comfort, and at the end of a further 48 hours asked for a light meal.



On the third day his temperature had returned to normal, and except for a slight transient rise on the fourth day it has remained so since. The spots were almost dry, and many of the smaller ones were already disappearing. He was able to take regular light meals, and on the fourth day he returned to normal diet. By the sixth day the patient was able to get up, 95% of the rash had disappeared, and his appearance suggested the final stages of an ordinary mild chicken-pox about two weeks old. His face, which had been unrecognizable on the first day, had cleared so well that he was able to attempt a shave with an electric razor.

In twenty years of general practice I have never seen a more severe case of chicken-pox at outset nor such a dramatic recovery.—I am, etc.,

Upminster, Essex. E. ANTHONY.

Research by General Practitioners

SIR,—May I point out another injustice done to the general practitioners, to which apparently no attention is ever paid and to whom no reward is ever offered? I refer to the very large amount of free research obtained by the various drug houses, who rely largely on general practitioners for clinical reports on many of their preparations. A vast reservoir of experience and accumulated clinical scepticism is tapped by the representatives of the drug houses, who call and obtain much information from general practitioners who are willing to give such, and yet at no time have I ever seen one single acknowledgment made of this source of information by any of the drug houses concerned.

It is surely high time that some such acknowledgment was made, particularly at this period when, more and more, the tendency to denigrate the general practitioner as a clinical observer becomes manifest.—I am, etc.,

London, E.2. G. LAWSON.

Guard against Congenital Syphilis

SIR,—While admittedly the incidence of congenital syphilis has diminished very considerably in recent years there is still room for improvement, since one not infrequently sees cases in the wards of the Children's Hospital, Great Ormond Street, and at medical meetings. For many years it has been known that the treatment of a Wassermann-positive mother as early as possible in pregnancy is of great value in preventing the disease in her offspring, and it has been abundantly proved that such treatment is efficacious.

In the past the treatment of the expectant mother with arsphenamines has entailed a certain amount of risk to her, but now that penicillin can take the place of arsenicals in the prevention of congenital syphilis there would seem to be no excuse for not carrying out a blood test upon every expectant mother and treating with penicillin all those who react positively. It is to be understood that before a W.R.-positive mother is treated the blood test should be repeated. Since it is now recommended that every expectant mother should have a blood test for the Rh factor, it should be possible to take sufficient blood so that the Wassermann test can also be carried out. I think this is the more important to-day because congenital syphilis has become so modified in character, either because of a natural reduction in the virulence of the infection, or because of better treatment of adults during the past 30 or 40 years, that even the elect may be deceived and fail to diagnose the disease clinically. In an obscure condition the possibility of congenital syphilis should constantly be borne in mind. A careful family history, including the grandparents, uncles, and aunts, as well as an examination of the mother for stigmata of congenital syphilis, and a blood test of mother and child, may often reveal the true nature of the child's obscure condition.

Education undoubtedly must play a great part. Possibly in this country the American methods would not be looked upon with favour—radio talks, public posters, and so forth would perhaps not commend themselves to British authorities—but one feels that the attention of medical practitioners should be drawn to the importance of the subject. When, in the past, one drew attention to the desirability of testing *all* expectant mothers, some general practitioners appeared to regard it as an insult that one should suggest that any of their private patients might be suffering from latent syphilis. One can only assure such practitioners that, during an experience of congenital syphilis extending over nearly 40 years, one has repeatedly seen cases of the disease in families where it would be least expected, and also in instances where the mother had attended an antenatal clinic but her blood had not been tested. Expectant mothers themselves should be told of the possible risks to their children and of the advisability of having a blood test and appropriate treatment if they are found to need it. Thirdly, midwives, who are annually responsible for a large number of deliveries, should be reminded of the importance of antenatal blood testing. And, lastly, it should be borne in mind that, even though a mother's blood is found to be negative in the early months of pregnancy, it is possible for it to become positive in the later months, so that in order to make assurance doubly sure the W.R. should be carried out on *two* occasions during pregnancy, if this be feasible.—I am, etc.,

London, N.12. DAVID NABARRO.

Oral Penicillin and Gastric Acidity

SIR,—Dr. H. C. Stewart (February 10, p. 299) raised again the question of our inadequate knowledge of the controlling factors in the intestinal absorption of penicillin and pointed out that it is not the active destruction of penicillin by the gastric acid that is important. He seems, however, to agree that administration of antacids might help in the absorption of penicillin. His letter answers in great part Dr. F. Bicknell's (January 27, p. 191) and Dr. D. Wheatley's (February 10, p. 299) criticisms. They both seem to have missed the main point of our paper, which was to estimate the dosage of penicillin required to ensure adequate bacteriostatic levels in at least 90% of the children. Large doses were required to achieve this, and if an antacid were added the same result was achieved with half that amount. Does Dr. Bicknell seriously suggest that there is no hydrochloric acid in the stomach of more than 90% of the children who suffer from conditions responding to penicillin and that this inhibition of secretion persists in all children for as long as penicillin treatment is necessary? And, assuming that gastric acidity destroys part of the penicillin, is he prepared to give a dose of penicillin to an ill child, knowing that, if the child has no hypochlorhydria, the dose is inadequate? Also, does Dr. Bicknell know when in each case the hypochlorhydria diminishes, and does he suggest gradually increasing the dose as the child gets better? If Drs. Bicknell and Wheatley do not know this, then they must run the risk of inadequate doses at a critical period of the child's illness. Alternatively, they accept Dr. Stewart's

conclusion that gastric acidity is not an important factor in the destruction of penicillin, in which case their plea for clinical trial on ill persons has no basis.

With regard to the relative value of oral and parenteral administration, we feel that the matter is one of choice between injecting a personally measured dose once every 24 or 48 hours and the less certain swallowing every three hours of an oral preparation, equivalent amounts of the latter at present costing, if no antacid is given, at least four times as much as the former.

Finally, regarding the comfort of the ill child, it is doubtful if all doctors and patients would agree that it is preferable to wake the child up and force it to swallow medicine or tablets every three hours rather than to give an injection every other day.—We are, etc.,

S. A. DOXIADIS.
J. L. EMERY.
SHEILA M. STEWART.

Sheffield

Blood Grouping on Blotting-paper

SIR,—Castaneda (1950) has described a new method of detecting certain immunological reactions which he calls "surface fixation." The method consists in mixing one loopful of a normal saline suspension of stained bacteria with one loopful of specific agglutinating antiserum, and one loopful of suspension with one loopful of normal serum, on a slide: one loopful of each mixture is then transferred to the edge of a strip of filter paper, which is then stood in normal saline. As the saline rises by capillary attraction the bacteria in the immune serum remain "fixed" whilst those in the normal serum are washed upwards. Alternatively, a large loopful of the serum is placed on the filter paper and followed by a small loopful of stained bacterial suspension. On adding normal saline, "fixation" occurs in the presence of immune serum and spreading in the presence of normal serum.

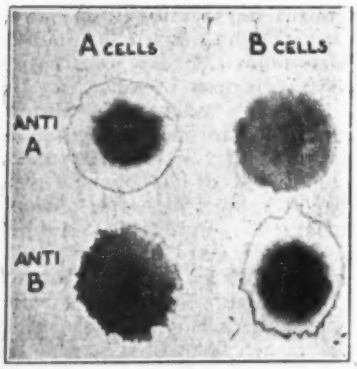


FIG. 1.

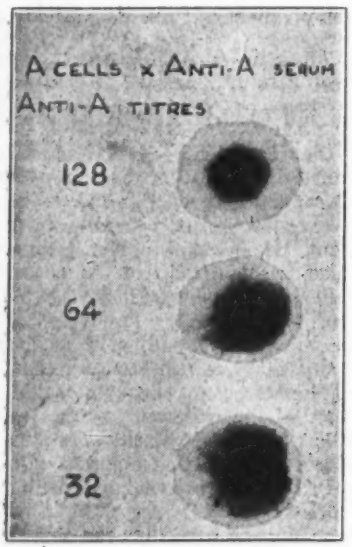


FIG. 2.

The method can be applied to ABO blood grouping, but is probably more useful as a means of screening Group A and Group B blood donors for high-titre anti-B and anti-A. The technique we have employed is as follows:

Blood Grouping.—One large drop of high-titre (1 : 128 or higher) anti-A and one large drop of high-titre anti-B serum are placed on a strip of blotting-paper (Ford's 248 Mill: white). When the drops have spread fully a small drop of donor's whole blood is placed in the centre of each of the circular patches of antiserum. As soon as the blood has partially dried—i.e., when the sheen has gone—two large drops of normal saline are added and allowed to spread. Positive and negative results are shown in Fig. 1. "Fixation" is immediate and the test takes about 15 seconds: its accuracy is being investigated.

Screening of High-titre Blood Donors.—Two large drops of donor's serum are placed separately on the blotting-paper and allowed to spread. In the centre of one circular patch is added one small drop of A_1 cells (40% saline suspension of washed cells) and in the centre of the other one small drop of 40% B cells. After partial drying two drops of normal saline are added and allowed to spread. A clear positive reaction is seen if the donor's anti-A or anti-B titre is 1 : 128 or higher, a weak positive with 1 : 64, and a doubtful or negative reaction with 1 : 32 (see Fig. 2). Control tests with known anti-A and anti-B sera (titres 1 : 128) are put up for comparison and matched against the tests with donor's serum. The results agree closely with those obtained by tube titration.

—We are, etc.,

R. H. MALONE.
R. R. STAPLETON.

Sheffield

REFERENCE

Castaneda, Ruiz M. (1950). *Proc. Soc. exp. Biol., N.Y.*, **73**, 46. Abstract in *Bull. Hyg.*, **25**, 805.

Too Much Worry over Blood Groups

SIR,—The complexities of the various blood groups increase and each advance is given great publicity. As one who has to deal with the clinical results of blood group incompatibility, especially between mother and child, may I plead for equal publicity for the fact that danger to the infant from such incompatibility is by no means as common as it is often thought to be?

Not more than 15% of marriages are between a Rhesus-negative woman and a Rhesus-positive man. Of these, no more than 1 in 40 will have an affected child at the second pregnancy, and not more than 1 in 12 at the fifth. The misery caused to parents in certain cases has tended to make some of us lose our sense of proportion and to subject all our Rhesus-negative patients to a great deal of unnecessary worry during their pregnancies.—I am, etc.,

Dublin. DOUGLAS E. MELLON.

Skin Disease and Psychology

SIR,—The points made in Dr. F. L. Lydon's letter (February 3, p. 249) are well taken, and I am in agreement with many of them. His deduction from them, however, is misguided.

Dr. H. J. Shorvon and his colleagues (December 9, 1950, p. 1300) did not claim to clarify the aetiology of skin disease, but only to offer an alternative method of treatment in certain intractable cases. To avoid employing a treatment when its mechanism cannot be explained is absurd. After all, what is the pharmacological action of Lassar's paste and crude coal tar?

In this "scientific" age, when apparently cause and effect must be fully understood for any treatment to be acceptable, it is well to remember that we are doctors first and foremost, and further that medicine, let alone dermatology, is still an art and not a science. So long as we do not deceive ourselves with spurious explanations, let us accept any therapeutic manœuvre which will help our patients.—I am, etc.,

Barnet. PETER BORRIE.

SIR,—Under this heading the interesting article by Drs. H. J. Shorvon, A. J. Rook, and D. S. Wilkinson (December 9, 1950, p. 1300) is unfairly criticized by Dr. F. L. Lydon (February 3, p. 249), who considers their forthright modest discussion (the essence of most great medical contributions) to be pathetic. His admitted difficulty in criticism is revealed by the citation of rosacea as his main example, when only one such case is tabulated in their series of 50. He disagrees with Dr. I. B. Sneddon's attractive theory that the chronic vascular dilatation of rosacea is due to a "reflex blushing of emotional origin" by explaining the distribution of physiological blushing in health. In my experience the patient with rosacea reacts to embarrassment by a vasodilatation of the central third of the face. I, for one, cannot agree that the explanation of some cases of pruritus ani and vulvae on a psychological basis represents a "funk-hole of scientific investigation." Sound physicians invariably exclude

all known organic causes before labelling a case psychogenic: these cases were examined by two competent dermatologists.

In his final paragraph Dr. Lydon denies abreaction therapy a place in dermatology, because under this treatment these idiopathic disorders "improved in some cases while others of apparently the same type showed no change," and "these diseases react to empirical methods in exactly the same way." Unfortunately, it is rare to find any one therapy to be successful in all cases of the same clinical dermatosis, and the types of cases under consideration are especially good examples of conditions which vary enormously in their reaction to empirical methods. One case of neurodermatitis responds to tar preparations, another to antihistamine applications, some to thorium X, and others to superficial *x*-ray therapy. Some are inconsistent in their response to the same local therapy, and likewise the reaction to sedation is most variable.

I should personally like to congratulate the authors of "Psychological Treatment in Skin Disorders" on ventilating a much needed line of therapy, and welcome the enthusiastic co-operation of psychiatrists in the treatment of skin diseases. This time-saving method will certainly have a place in the management of some of the many psychogenic skin diseases. In a recent analysis of 1,678 new cases seen by me at one general hospital, 10% would normally be considered psychogenic; and this did *not* include such conditions as simple alopecia 8%, nummular eczema 4%, psoriasis 5%, seborrhoeic dermatitis 5%, pruritus vulvae 1%, pruritus ani 1%, and lichen planus 1%.

In conclusion, might I recommend the use of controls in the final evaluation of abreaction therapy? These similar control cases should also be considered suitable for abreaction therapy, but should receive only topical remedies. Furthermore, the assessor of results of the two groups should be an independent observer, unaware of the therapy given, and a longer follow-up period should be envisaged.—I am, etc.,

London, W.1. I. MARTIN-SCOTT.

Thrombophlebitis

SIR,—In the annotation (February 10, p. 289) you cite the unpleasantness from the patient's point of view and the technical difficulty from the operator's point of view as drawbacks to the treatment by paravertebral nerve block. May I suggest that these disadvantages may be largely overcome by substituting a lumbar epidural block for the paravertebral approach? The fact that it is not unilateral does not detract from its efficacy: and as there is but one site of injection involved it is correspondingly more tolerable for the patient.

In those cases which my surgical colleagues have asked me to treat by this method the swift relief of pain and the almost immediate softening of the limb amply repay the modicum of patience necessary to acquire the technique of epidural block.—I am, etc.,

London, S.W.15. GEOFFREY STEEL.

Diagnosis of Aortic Stenosis

SIR,—In Dr. D. Lewes's interesting article (February 3, p. 211) he refers to the value of tomography of the heart as shown by C. E. Davies and R. E. Steiner (*Brit. Heart J.*, 1949, **11**, 126). I would like to stress the usefulness of this method of investigation. It has been employed in St. Giles' Hospital for the last five months. During this time calcification of the aortic valve was demonstrated in six patients. Of these patients a calcified aortic valve was identified on screening in only three, and in an overpenetrating right oblique teleradiograph in only two cases.

The tomographs are taken in a similar way to that advised by Davies and Steiner. The patient lies supine in the left posterior oblique position, being rotated through an angle of 25 degrees, with the tube centred 10 cm. below the suprasternal notch in the midline. The tomographic films are taken at 9, 11, and 13 cm. above the table-top. Tomography will demonstrate the less densely calcified valves that are not to be detected by other methods. It could be used with advantage in the routine investigation of any patient suspected of aortic stenosis. The valves are at the level of the eighth thoracic vertebra. In one patient the shadow of a calcified coronary artery was also seen, and the findings confirmed at post-mortem.—I am, etc.,

London, S.E.5. M. F. MOSES.

The M.P.U.'s Inquiry

SIR,—You include (February 17, p. 343) our name at the end of a list of organizations undertaking or about to undertake investigations into the state of general practice. Our recently published proposals for a new basis of remuneration and the questionary which followed in no way constituted an investigation. We were not out to elicit facts but to obtain opinions. Other bodies may decide, and probably will, that a more logical method of remuneration would be theoretically desirable, but they will still have to find out whether most doctors prefer the logical to the illogical. We merely put forward a tentative scheme (capable of modification) and asked all general practitioners for their opinion of it. Of the 2,450 who replied, 80% were in favour and only 6% wholly against. We then interviewed 114 practitioners in person and the percentages remained of the same order. Since publishing these figures we have interviewed another 100 in London and Birmingham and still the percentage in favour is between 70 and 80. One can hardly ignore the consistent return of these figures as between town and country and between regions.

The statistician who examined these figures drew the guarded conclusion that "it is not unlikely that the favourable proportion was as high as 70%." You find this conclusion "incredible," which we can well believe, since you equate 13% of all general practitioners with 114 instead of the actual figure of some 2,500.

We were not out to prove a case but to elicit opinions on a matter of great consequence to the profession. We hope that the General Medical Services Committee will take up this task and carry the inquiry a stage further. In the meantime we have the right to expect of you a more appreciative attitude towards an honest attempt to improve the conditions of general practitioners.—I am, etc.,

BRUCE CARDEW,
General Secretary, Medical Practitioners Union.

*** The summary to the inquiry states that "the overall response rate was approximately 13%." We acknowledge the error in referring to 114 practitioners, while still finding incredible the conclusions drawn from such a small response. The statistician concludes in the summary—in a less guarded phrase than Dr. Cardew quotes—"that a majority (possibly 70%) of general practitioners in Great Britain and Northern Ireland were in favour of the Medical Practitioners Union scheme."—ED., *B.M.J.*

Operating Theatre Technicians

SIR,—We heartily endorse the views expressed in the annotation (January 13, p. 80) dealing with the aims, objects, and scope of work of operating theatre technicians. It is high time that the facts concerning these men were more widely known and that the widespread wholly erroneous belief that they are merely theatre orderlies was corrected.

There is one very important aspect of their work which you did not discuss and to which we would like to draw attention. This is the invaluable assistance which theatre technicians can and do render to anaesthetists. In our hospitals, in addition to their other duties as described by you, the technicians charge syringes, position the patient, and prepare sterile trolleys for spinal and local analgesia. When it is recalled that two years ago a hospital in Portsmouth had to pay very heavy damages to a young man who was incontinent and paralysed following infection after improper sterilization of instruments for spinal analgesia, it will be realized how important and responsible is the work

that theatre technicians are expected to perform. Surely theatre technicians deserve better than to be classed by the Whitley Council with theatre porters and domestic workers, and surely by now a satisfactory decision concerning their status and wage claims should have been reached.—We are, etc.,

J. ALFRED LEE.
T. C. THORNE.

Southend and Rochford.

Seasickness

SIR,—It is a consequence of the ship surgeon's mode of life that he has often a delayed contact with his medical journals, and this must be my excuse for the lateness of this comment on the subject of seasickness, raised some months ago (*British Medical Journal*, November 25, 1950, p. 1225, and earlier).

I have been engaged in this work for nearly two and a half years, responsible for quite a large ship's company, the great bulk of which, the passenger personnel, changes its identity approximately every fortnight, so that the sick are nearly always with us. This experience covers an initial period of about a year when the standby was hyoscine, reinforced at times by phenobarbitone; then, with the advent of the antihistamine group, the tentative use in my practice of "antistin," "phenergan," "benadryl," and for the last 15 months as it became available the American product "dramamine."

It is almost impossible on a passenger ship to make a reliable statistical record. The pains of seasickness, like those of labour, are readily forgotten; and, while the pains of labour are only sometimes considered discreditable, the pains of seasickness always are, so that the sufferer on the first sign of recovery flies from the memory and the shame of it all to the delights of the table and ship life generally, and is unlikely to be heard of as a patient again. However, I find the following definite impressions inescapable. However helpful hyoscine may be in other forms of travel, for seasickness on a large ship at least the antihistamines are much superior for both prophylaxis and treatment. In effective dosage their side-effects will be less. In my view, dramamine is the most effective, phenergan not far behind; antistin is weaker, bulk for bulk, and I have found its greatest success in children. Benadryl is undoubtedly helpful, but I have no great experience of it in this connexion. Other drugs of this type are of course in use, and new ones are appearing: I hope to hear reports of them.

Of side-effects, some people appear to have none. The most typical is a feeling of lassitude, which can be well counteracted if thought necessary by the administration, as recommended by the makers of phenergan, of 5 mg. amphetamine sulphate. This has been found by some, I believe, to be an adjuvant as well as a corrective.

With dramamine I have found, on rare occasions, more serious complaints: once a feeling of indefinite downright illness, once a mild paresis of forearms affecting the power of lifting small objects, and a few times a slowing up of mental processes, making conversation a conscious effort. The sedative effect is often of great value, especially at night, and this quality might well be remembered in other connexions. I believe I have had considerable success with these drugs in obtaining sleep in bad asthmatic attacks when using them in support of other measures.

It is pertinent to ask just how good these drugs are in seasickness. In my view they have brought about, when properly used, something like a revolution in our power of control of this malady. In a common type of case with rejection of food and fluids for, say, two days, the following procedure will usually be effective. In the quiet period usual after a bout of retching a tablet can be given, and will in most cases be retained long enough to begin to exert its effect. Should there be evidence of acidosis, a half-pint of water with a teaspoonful of sodium bicarbonate is a help, although immediately rejected. When the drug is not retained, it can be put into solution and given rectally. As soon as improvement is evident, small quantities of glucose water can be given, and the amount rapidly increased and quickly followed by solids. The drug can then be continued by mouth. Intravenous fluids I have not found necessary, and with the patient and bed in continual movement administration would have its difficulties. It is advisable to continue the drug for a day or two after recovery. There are failures, but, in my experience, they have been few.—I am, etc.,

J. CRAWFORD.

Sutton, Surrey.

Fatal Shock under Anaesthetic

SIR,—The case reported by your Medico-Legal Correspondent (February 17, p. 362) is of interest to all anaesthetists. The pathologist concluded that death was undoubtedly due to shock, which in his opinion occurred because the anaesthesia was not sufficiently deep. "The coroner, finding death from misadventure, said it was quite clear that had the anaesthesia been sufficiently deep the shock would not have had any effect."

Clinically, overdosage produces a condition which closely simulates shock and which cannot be distinguished from it. Can a pathologist by post-mortem examination determine whether death has been due to overdosage or to too light an anaesthesia, and what are the distinguishing features? I believe that once the level associated with unconsciousness is reached any further deepening of the anaesthesia is called for only by the needs of the surgeon, and that it is solely by the elimination of fear and pain that general anaesthesia is helpful in preventing shock.—I am, etc.,

ARTHUR MILLS.

Dundee.

Martin Van Butchell

SIR,—I should be pleased to hear from readers who are aware of the existence of photographs (or illustrations) of relics of the eccentric Martin Van Butchell, who in the late eighteenth and early nineteenth centuries practised in Mount Street, London, first as a dentist and later as a quasi-surgeon. All the relics in the museum of the Royal College of Surgeons (including his walking-stick and the embalmed body of his first wife) were destroyed during an air raid in 1941.—I am, etc.,

J. MENZIES CAMPBELL.

14, Buckingham Terrace, Glasgow, W.2.

Research in Anthropometry

SIR,—The Medical Research Council has appointed a Committee on Growth and Form, under the chairmanship of Professor P. B. Medawar, with the following terms of reference:

"To advise and assist the Medical Research Council (*a*) in promoting research on the growth and form of the human body with particular regard to the provision of basic scientific data, including the elucidation of factors affecting the rate of growth of the whole body and of its parts and the establishment of norms of stature and weight for different ages and different sections of the population; and (*b*) in facilitating the application of such data to various practical problems, including such as arise within the field of clinical medicine."

One of the committee's first tasks is to make a review of work in the field of anthropometry. The committee would accordingly be glad to have information about current or completed anthropometric surveys, including unpublished records, so as to avoid any unnecessary repetition of work and to ensure, if possible, that use is made of existing material. It is believed that there are in existence records of height, weight, and other body measurements which, if analysed, could form the basis for research into growth and development. Serial records of the growth of the same children from year to year, as well as measurements which have been recorded over a long period of time, would be particularly valuable.—I am, etc.,

E. M. B. CLEMENTS,
Secretary, M.R.C. Committee on Growth and Form.

Birmingham, 15.

*** See also annotation at p. 403 of this issue.—ED., *B.M.J.*

Obituary

H. M. VERNON, D.M.

Dr. H. M. Vernon, formerly university lecturer in chemical physiology at Oxford and later investigator to the Industrial Health Research Board, died at his home in London on February 11 in his 81st year.

Horace Middleton Vernon was born on October 3, 1870. He was educated at Dulwich College and went from there to Merton College, Oxford, with a science scholarship in 1888. After taking first-class honours in chemistry and physiology, he developed a great interest in general biology, and in 1894 became a Naples Biological Scholar. During the next few years he worked for five spells, two years in all, at the Marine Biological Station at Naples, where he made statistical studies of the effects of environment and cross-fertilization on the growth of sea-urchin larvae. In between times Vernon did his clinical work at St. George's Hospital, London, and graduated B.M., Ch.B. in 1896, proceeding D.M. three years later. He won the Rolleston Memorial Prize in 1896 and a Radcliffe Travelling Fellowship in 1897. From 1898 to 1920 he was a fellow of Magdalen College, Oxford, and he became university lecturer in chemical physiology. During those years he was engaged on regular teaching and research in physiology.

For the following account of Dr. Vernon's later work we are indebted to Dr. Thomas Bedford: Up to the first world war Vernon had lived the quiet, sheltered life of Oxford. During that war he still had teaching obligations, but during the summer vacation of 1915 he volunteered for munition work in a Birmingham factory. His job was gauging shells. The working week was 74½ hours—12 hours a day from Monday to Friday, and less on Saturday and Sunday—but overtime was often worked. These months opened up to Vernon a field of experience of which he had previously been ignorant. He noted various defects of management and working conditions that made a deep impression on him. Because of the serious shortage of shells factory workers had for months been working inordinately long hours, and by the summer of 1915 overwork was taking its toll. Sickness increased and output declined. In the autumn the Health of Munition Workers Committee was set up to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the health and physical efficiency of workers. Vernon offered his services as an investigator, and throughout the rest of the war he carried out field investigations during vacations and worked up his data during term time as his teaching duties at Oxford allowed. He made extensive studies of the effects of hours of work on output, on the incidence of accidents, and on minor sickness. It was during these investigations that he showed for the first time the profound effects of the temperature of the workplace on the incidence of accidents. During that war he was induced, rather unwillingly, to undertake a study of the effects of alcohol on working efficiency. He was delighted when, after a report on this work had been published, one of the comic papers caricatured the alcoholic "professor" and his experiments.

When in 1918 the Industrial Fatigue (later Health) Research Board was set up to continue the work that had been so ably begun, Vernon was the first to be invited to join its staff. This meant relinquishing his Oxford appointments, but to the surprise and dismay of his friends he did so, for he was attracted by the great opportunity to serve society. At first he undertook investigations of heavy work in the tinplate and the iron and steel industries, and after that in the Potteries. It was at this time that I joined Vernon as his junior associate. Thereafter for a dozen years it was my privilege to work with him almost the whole time, for the most part studying the effects of thermal conditions in mines, factories, and schools, and investigating various systems of heating and ventilation. We also studied the effects of rest pauses in industry, and carried out a laboratory study of static effort. Those were busy years. Vernon was a man of great industry and a methodical worker. Unnecessary interruptions of work annoyed him, and he did not suffer fools gladly, yet he would pursue a long investigation, often involving much dull labour, with infinite care and patience. He was a kind and considerate chief. A sensitive, rather shy, and unassuming man, he cared little for social activities, and devoted himself to his work. When he was about 60 years old Vernon began to feel that he was becoming less vigorous than formerly, and he retired in 1932.

After his retirement Vernon occupied himself in writing at times when there was no opportunity to watch cricket. Before the outbreak of war in 1939 he had written books on *The Principles of Heating and Ventilation*, *The Shorter Working Week*, *Accidents and their Prevention*, and *Health in Relation to Occupation*. He was also a valued contributor to this *Journal*. When war came, and we again lacked armaments, he was disappointed to find that the lessons of the earlier war—especially those concerning excessive hours of work—were ignored, and he did all that one of his age could to combat the evil. He wrote a book on *The Health and Efficiency of Munition Workers*, and contributed several articles to periodicals.

Vernon was a pioneer in the field of industrial health, and his many and varied contributions will be of lasting value to society. He married Miss Katharine Dorothea Ewart, who, with a son and three daughters, survives him.

F. W. ROUTLEY, M.D.

The death on February 12 of Dr. Frederick W. Routley, at the age of 71, is reported from Toronto. He was best known over here during the war when, as National Commissioner of the Canadian Red Cross Society, he had his headquarters in London. His brother, Dr. T. C. Routley, is the present secretary of the Canadian Medical Association. Frederick Routley was born in Canada in 1879. He graduated M.D. at the University of Toronto in 1907, and after postgraduate studies in England he returned to Toronto, where he practised medicine until 1922. In 1937 he was appointed National Commissioner of the Canadian Red Cross Society, with responsibility for the general direction of the Society's work in that country. He held this office until 1948, when he was elected an honorary consultant of the Society. He was also secretary-treasurer of the Ontario Hospital Association. Dr. Routley wrote numerous articles on hospital and Red Cross activities in Canada.

Dr. JOHN RIPPINER HEATH died on December 23 at Barmouth, where he had been in practice since 1913. He was born in Birmingham in 1887, the son of Dr. R. S. Heath, vice-principal of Birmingham University. Educated

at Clifton and Trinity College, Cambridge, he then went to Birmingham for his hospital training. After qualifying in 1911, he was house-physician at the Queen's Hospital, and then became assistant lecturer in physiology in the University of Birmingham. In 1913 he went into general practice in Barmouth, where he spent the whole of his professional life, except when he was in the R.A.M.C. during the first world war. He served for a time in Salonika. His health had been failing for the last few years before his death, but his patients were always his first consideration; he had never spared himself, and was working up to the last few days of his life. By his death, both the profession and his many patients have suffered a real loss. He was the true physician, a man of unusual sympathy and understanding, from both the scientific and human points of view. His patients were his friends, and they rightly had complete confidence in him. The radius of his practice extended to about 25 miles, but he had, too, many patients from the north and south of England who first consulted him as a doctor at a seaside resort when they were on holiday and later returned again and again for advice and treatment. Heath was a man with an original turn of mind; he devoted much thought and time to psychiatry when its association with general medicine was first being recognized. An exceptionally accomplished musician, his fame as a composer was not merely local. Several of his compositions have been broadcast, including music he wrote for the Meirion Welsh Ballet Company. He was conductor of the Barmouth Choral Union, and for many years helped with the organization of the musical festivals at Harlech. His chief relaxation was fishing for salmon and trout, and he was a grand companion with whom to fish. He was also a keen and enterprising yachtsman, and, if he had the time to sail, he was not deterred by the weather. He loved that part of Wales in which he lived, and showed it by serving it faithfully and well. He leaves a wife, a son, and a daughter.

Dr. JAMES STEWART MCLAREN died suddenly at his home in Stratford-on-Avon on January 28, aged 64. The second son of the late Mr. James McLaren, a Scottish missionary, he was born in Blythswood, Butterworth, South Africa, and educated at South Africa College, Capetown, and Edinburgh University, where he graduated M.B., Ch.B. in 1912. After working as a house-surgeon at the King Edward VII Hospital, Windsor, he returned to South Africa and was in general practice in Uitenhage and Cradock, C.P. Dr. McLaren then decided to take up surgery and returned to Edinburgh in 1923, becoming a Fellow of the Royal College of Surgeons of Edinburgh the following year. In 1925 he settled in Stratford-on-Avon in partnership with the late Dr. Donald S. Murray, a partnership which lasted over 25 years. An honorary surgeon at Stratford Hospital almost from the beginning of his practice in that town, McLaren led a busy and active life. He was chairman of the Warwick and Leamington Division of the B.M.A. in 1936–7. Latterly he had found the strain of operating too great and gave up surgery about twelve months ago. He felt the death of his partner last December very deeply, and became ill shortly afterwards. His illness ended with a severe heart attack from which he died. He is survived by his widow and a son and daughter.

Dr. ERNEST CROMWELL PEAKE, whose career as a medical missionary in China lasted, with intermissions, for nearly half a century, died at Burpham, Sussex, on December 24, at the age of 75. The son of missionary parents, Peake was born in Madagascar. He was educated in this country and studied medicine at Edinburgh University, graduating M.B., Ch.B. in 1898. After joining the staff of the London Missionary Society he was sent to the province of Hunan in China, where he was the only white doctor in a then hostile city of 200 000 people. During the Boxer riots he went for safety to Hankow, where he slept with a rope under his bed so that in an emergency he could let himself out of the window. When he returned to Hunan he was able to build a hospital and establish a sound medical tradition. He was later sent to Tientsin, where he was in charge of the London Mission Hospital. In 1911, during the Chinese civil war, he was working with the Red Cross between the two opposing armies, for which work he was decorated by the Chinese Government. In the first world war Peake served in the R.A.M.C., part of the time in Belgium. In 1922 he retired from active work in China owing to the ill-health of his wife, who died in 1939, and he was in general practice in London until 1938. After the last war he again offered his services to the London Missionary Society in order to relieve those doctors who had been interned by the Japanese during the war. His offer was accepted, and in 1945 he was sent to Hong Kong, then under the administration of the British Army. He was given the rank of lieutenant-colonel and put in charge of the modern Nethersole Hospital, which was the only hospital for Chinese civilians kept open by the Japanese during their occupation of Hong Kong. As superintendent of this hospital Peake held a responsible position: at that time Hong Kong was full of bandits and the Army had to send an armed escort with him when he went to the Hong Kong bank to collect the weekly money. He returned to England in 1946, and settled in Burpham, where he became a valued member of the community—his medical advice and friendly wisdom being always at the disposal of the village people.

Dr. GEORGE SMITH SMALL, consulting physician to the Cornelia and East Dorset Hospital, Poole, died on February 3 in Poole, aged 80. He was born in Brechin, Angus, and was a student at Edinburgh, where he graduated M.B., C.M. in 1896. He proceeded M.D. seven years later. After holding resident appointments at the Royal Infirmary, Edinburgh, he went into practice in Bedford. Some years later he moved to Poole, becoming an assistant to Dr. Lawton, whose practice he eventually took over. He was appointed to the staff of the Cornelia and East Dorset Hospital, Poole, becoming senior physician just after the end of the first world war. He retired in 1935. A prominent member of the Poole bench of magistrates, Dr. Small was also chairman of the Dorset Congregational Union and Assistant District Commissioner of the Boy Scouts.

A. M. R. writes: With the passing of Dr. George Smith Small it is fitting that a tribute to his memory should be expressed by one who held him in very high esteem. He was in every sense a great physician. Not only were his medical qualifications and standards high, but his kindness, humility, and instinctive sympathetic regard for the sick brought succour to many sufferers, who felt better for his smile and quiet, dignified presence. A man of extremely high ideals, he was especially interested in youth, and gave young people tremendous encouragement by his advice, which bore the stamp of sound common sense, coupled with a Christian attitude to life. He was fair and just and spoke with a sincerity of thought and purpose that stamped him outright as a really outstanding personality. His active life was one of true devotion to do his best for humanity. He was loved by his patients, admired by his colleagues, and will be remembered with respect and esteem by all who had the good fortune to know him.

Wing Commander H. M. STANLEY TURNER died in Guy's Hospital on February 5. He studied medicine at Durham University and Guy's Hospital, qualifying in 1899. After developing an interest in ear, nose, and throat surgery he became registrar at the Central London Ear, Nose, and Throat Hospital and assistant surgeon in the E.N.T. department of the Bolingbroke Hospital, Wandsworth. From his early days Turner was of an adventurous disposition. While he was a student he had taken part in the Graeco-Turkish war and been made a Knight of the Royal Order of Saviour of Greece for his services. About 1910 he went out to the Falkland Islands as an assistant surgeon, and within a few years he was taking a leading part there in local government. He became a justice of the peace, president of the Board of Health, and Deputy Governor. In addition, he joined the West Falkland Mounted Infantry, and at the

time when the German fleet put into the Falkland Islands near the beginning of the first world war he was in command, with the rank of major, of the Falkland Islands Defence Force. The German fleet was later defeated by Admiral Sturdee's squadron, and for his valuable work in organizing the defence of the islands Turner was awarded the M.B.E. Later he served in France with the 47th and 58th Divisions. In October, 1918, he transferred to the R.A.F., with a permanent commission. In 1919 he went to Egypt as principal medical officer at Middle East Headquarters, and he was able to play a valuable part in Egyptian medical affairs. He was appointed by the Egyptian Minister of Education to be a member of the selection committee of the University of Cairo, to which he was also an examiner in physiology. In 1921 he took the D.T.M.&H. (with distinction), and for a time he was the local secretary in Egypt of the Royal Society of Tropical Medicine. He was elected a Fellow of the Royal Society of Edinburgh in 1925. In 1927 he returned to England and was placed on the retired list three years later. Though a Service man to his finger-tips, when he went into private practice in Surrey Turner became the personification of what the well-loved family physician should be—keeping up to date in his medical knowledge and gaining the confidence of all. His B.M.A. activities were many and varied. He served on a number of its committees in the 'thirties, including the Naval and Military Committee and the R.A.F. Subcommittee. A Member of Council from 1930 to 1937, he became chairman of the Guildford Division in 1944, and was president of the Surrey Branch in 1947–8. In debate he showed himself always well informed, and his contributions were useful and to the point. One of a fast-disappearing generation, Wing Commander Stanley Turner was a very likeable personality and will be sadly missed. One of his sons and his daughter are in the R.A.F. To them and to his widow we owe our deepest sympathy.—F. A. B.

Dr. ALBERT JACOBUS STALS, Minister of Health and Social Welfare in the Union of South Africa, died in Capetown on February 5, aged 71 years. Albert Jacobus Stals went to school in South Africa and attended the University of Stellenbosch. He continued his studies in Europe, and eventually decided to qualify as a doctor. He graduated M.B., B.Ch. in Dublin in 1909, and proceeded M.D. the same year. He was in general practice in South Africa until 1924, when he was elected to the South African Parliament. From 1928 to 1934 he was a member of the Union of South Africa Medical Council, appointed by the Government. He became an important member of the Nationalist Party in South Africa, and was made Minister of Health and Social Welfare in 1948.

G. C. T. writes: The passing of Major-General Blackham recalls his unique and chequered career, set out in his autobiography, *Scalpel, Sword, and Stretcher*, published in 1931. To B.M.A. members the active part he took during the Centenary Meeting, particularly in connexion with the Guildhall Banquet and our overseas visitors, will be remembered. Amidst the pomp and pageantry of the City of London, he was well placed to write, among other books, *The Story of the Temple, London's Livery Companies, The Sovereign City*, and *The Romance of Freemasonry*. His work for the St. John Ambulance Brigade and Royal Institute of Public Health was well known. Perhaps not so widely appreciated was his work in connexion with the annual Professional Nurses' and Midwives' Conference and Exhibition organized by the *Nursing Mirror*. For 25 years he took a personal interest in this, and his kindness to individual nurses will long be remembered.

Dr. Henry Robinson writes: In the interests of historical accuracy it should be put on record that the aphorism about the ingratitude of sufferers from fractures, attributed by Dr. A. P. Bertwistle (February 17, p. 358) to the late George Gask, was frequently used by the late Marmaduke Sheild at a time when Gask was not yet qualified: no doubt the younger borrowed it from the older surgeon.

Medico-Legal

A FATAL MISSED PREGNANCY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Last month the Birmingham coroner inquired into a remarkable case of death due to obstructed labour which two doctors had failed to notice.[1] The patient was a primipara of 31. She had been married for 10 years. Towards the beginning of her marriage there was a history of some missed periods and a suspected pregnancy which came to nothing. She had always wanted a child but was said to have been unusually shy about physical matters: she would not willingly discuss them even with her mother, or undress in front of her husband.

The condition from which she died started to show itself 11 days before her death. On December 15, 1950, she complained to her husband of pain at the base of her spine. According to her husband she went to see her insurance doctor, and he gave her some ointment to rub on her back and in a panel note described her illness as lumbago; the doctor, however, would not admit in evidence that he issued this note. The pain gradually increased, and on December 22 her husband sent for a second doctor to give another opinion, paying him a fee.

According to this doctor she never mentioned pregnancy, and he never asked her about it; her main symptoms were pain in the sacrum and coccyx; he was told that she had fallen some months previously, that her periods were irregular, but that one had appeared five months before. He examined her back and listened to her heart with a stethoscope. He declared also that he examined her abdomen and found no resistance, but her mother, who was present, said in evidence that she lay on her stomach the whole time and never turned over. He said that her temperature on that occasion was half a degree above normal, and that he diagnosed coccygeal injury and constipation. On December 24, when he called again, he advised her (according to the husband) to sit over a bucket of hot water. Then, the husband said, her pain became worse, coming on every two hours in bouts. On the 26th he telephoned for this doctor at 9.30 a.m., but when the doctor arrived at 12.40 she was already dead. The first doctor, who was also summoned, arrived slightly before that time.

Her pregnancy, which had thus eluded two doctors, herself, her husband, her mother, her sister, and her workmates, was first discovered after her death. The pathologist, Dr. K. W. Walton, of Birmingham University, stated that her body was obese, the abdomen markedly protuberant, the nipples and areolae pigmented, and the ankles slightly oedematous. When the abdomen was opened a large quantity of turbid foul-smelling fluid escaped. The empty bladder was inflamed and had a slight rupture of its anterior wall; the generalized peritonitis had evidently been caused by the escaped urine. The uterus contained a foetus weighing 7 lb. 10 oz., the head of which was firmly impacted in the pelvic outlet; it could have been delivered only by caesarean section. The presentation was right occipito-posterior. A large caput succedaneum was found over the left parietal region. The uterus contained amniotic fluid stained with meconium. The intestines were congested, and the sigmoid colon was full of firm scybala, but the rectum was empty. The kidneys were pale and flabby, and their pelves were dilated and filled with cloudy urine. The lungs were congested, with commencing bronchopneumonic consolidation of the lower lobes. Dr. Walton gave the cause of death as peritonitis, explaining that pelvic disproportion had obstructed the labour and that the continued pressure of the head had caused the constipation and the necrosis and rupture of the bladder; the basal pleurisy had been due to the peritonitis, which must have started on December 24 at latest. The first stage of labour, he said, must have started on the 20th or

[1] *The Times*, January 9.

21st. In answer to the coroner he said that he was very surprised that a man with medical training should have failed in a reasonable light to see the characteristics of pregnancy.

The coroner, in his summing-up, placed the responsibility on the second doctor called in for an opinion, who, he said, should not have been deterred from carrying out a full examination and making a definite diagnosis. The jury returned a verdict in accordance with the medical evidence.

Medical Notes in Parliament

Swiss Beds for British Patients

In the adjournment debate on February 19 Miss IRENE WARD summarized progress in the Parliamentary discussion on the need to use Swiss sanatoria for British patients with tuberculosis. She recalled that, while the Treasury had granted extra currency to nearly 300 people going to Switzerland for treatment as private patients, the Ministry of Health had refused to subsidize patients from the lower income groups, although local authorities had done this prior to 1939 and the same practice was at present in force in Holland. However, the Scottish Office had sent a group to Switzerland to survey the possible accommodation which might be used under the National Health Service, and apparently about 300 beds were suitable. She wanted to know if these beds would be available to other than Scottish patients and whether use was to be made of Montana Hall.

Mr. EDGAR GRANVILLE suggested that the Minister might make an agreement with his opposite number in the Swiss Government to discuss some interchange scheme under the National Health Service.

Mr. A. BLENKINSOP replied for the Government that 300 beds would be available for the whole of Britain if it were decided to proceed with this new scheme: and he was convinced that there would not be many more beds than this which would have the proper standard of nursing and medical care. But there were two important points to bear in mind. One was that many Swiss sanatoria were more in the nature of delightful and luxurious hotels, and it would be useless to send patients there if they would not be happy under those conditions. Also it was important to decide whether the relatively great cost of running this Swiss extension for a relatively few patients was justified. They were quite prepared to spend the money, but they wanted to feel sure that the same expenditure in this country would not produce better results. In conclusion he pointed out that 3,500 extra beds for tuberculosis had been brought into use since the Health Service began, and he hoped that a further 2,000 beds, if not more, would be made available during this year through the co-operation of general and teaching hospitals. It was in the light of these facts that discussions were now proceeding between the Ministry and the Treasury on the possibilities of the Swiss scheme.

National Service Marriage Allowances

On February 14 Dr. CHARLES HILL asked the Minister of Defence why married National Service medical officers aged 25 or over received a marriage allowance of 12s. 6d. a day as compared with a corresponding allowance of 18s. 6d. a day granted to short-service or permanent officers. He pointed out that the upper age limit for conscription was 26 except in the case of medical practitioners, who were liable up to the age of 30.

Mr. E. SHINWELL replied that increases in marriage allowances given to regular officers in 1948 were intended to meet certain exceptional expenses not normally incurred by National Service officers. Dr. CHARLES HILL then pointed out that the cost to a short-term officer of maintaining a wife and other special expenses and burdens was no greater than to a National Service officer. Mr. SHINWELL then reaffirmed that there was a difference in the liabilities incurred.

Other Business

The House of Commons, on February 16, accepted after debate a motion moved by Brigadier Head calling attention to war pensions and allowances in relation to the rising cost of living and hoping that the Government would review this question.

The Penicillin (Merchant Ships) Act received the Royal Assent on February 15.

Chronic Sick.—There were 7,712 in England and Wales on December 31, 1949, the latest date for which complete returns are available, awaiting hospital admission. On the same date there were 7,575 empty beds in chronic sick hospitals, but more than half of the beds were unstaffed.

Cost of N.H.S. Drugs.—The average cost (including chemists' remuneration) of drugs supplied per person on prescribing doctors' lists for the year ended December 31, 1949, was 15s. 7¼d.

Egg Ration.—The priority supply of eggs for children between the ages of 6 months and 2 years is three per week. The Ministry of Food expects the average allocation for other consumers, including children over the age of 2 years, to reach this rate during the present month and to remain as high or higher for several months.

Immunization State.—The number of children immunized during 1949 was 693,441, while 500,500 received booster doses, making a total of about 65% of the under-15 population.

Universities and Colleges

UNIVERSITY OF OXFORD

Professor G. R. Cameron, F.R.S., Director of the Graham Research Laboratories and Professor of Morbid Anatomy, University College Hospital Medical School, London, will deliver a Litchfield Lecture on "Some Recent Work on Pulmonary Oedema" in the Maternity Lecture Theatre, Radcliffe Infirmary, Oxford, on Wednesday, March 7, at 5 p.m.

UNIVERSITY OF LONDON

The Governing Body of the British Postgraduate Medical Federation has awarded postgraduate travelling fellowships for 1951–2, tenable for one year, to W. A. Briscoe, B.M., B.Ch., of the Postgraduate Medical School of London (respiratory function, U.S.A.); H. McK. Carey, M.B., B.S., M.Sc., F.R.C.S.Ed., M.R.C.O.G., of the Institute of Obstetrics and Gynaecology (uterine physiology, Canada and U.S.A.); J. A. Carr, M.B., B.S., F.R.C.S., of the Institute of Urology (calculus formation, U.S.A.); J. O. Laws, M.B., B.Ch., M.R.C.P., of Guy's Hospital Medical School (cytology, France); R. B. Lynn, M.D., C.M., F.R.C.S., of the Postgraduate Medical School of London (cardiovascular surgery, U.S.A.).

In Convocation on January 20 Dr. Ivor Lewis and Dr. A. Talbot Rogers were elected to membership of the Standing Committee of Convocation as representatives of the Faculty of Medicine.

The appointment of house-physician to the Mental Observation Unit at St. Pancras Hospital (University College Hospital Group), has been approved for the purposes of the M.D. examination, Branch III (Psychological Medicine), and those of house-physician at the St. Helier Hospital, Carshalton, Surrey, and junior registrar in medicine at the Hammersmith Hospital, for the M.D. examination, Branch I.

UNIVERSITY OF BIRMINGHAM

Mr. Hugh Cameron McLaren has been appointed Professor of Obstetrics and Gynaecology in the University in succession to Professor Hilda N. Lloyd, President of the Royal College of Obstetricians and Gynaecologists, who resigned the Chair on December 31, 1950. Mr. McLaren was educated at Glasgow High School and at the University of Glasgow, graduating M.B., Ch.B. in 1936. Two years later he was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow; in 1941 he proceeded M.D., and in the same year he became a Member of the Royal College of Obstetricians and Gynaecologists. In 1946 he was elected a Fellow of the Royal College of Surgeons of Edinburgh. During the war Mr. McLaren saw service in Europe and India, finally achieving the rank of Lieutenant-Colonel with charge of a surgical division. At the end of hostilities he was given the task of organizing the R.A.M.C. College at Göttingen, where courses were held for officers returning to civilian life.

He has served as First Assistant and Reader in Obstetrics and Gynaecology in Birmingham since 1947.

Professor Arthur Peregrine Thomson, Professor of Therapeutics in the University of Birmingham since 1947, has been appointed Dean of the Faculty of Medicine in the University in succession to the late Sir Leonard Parsons. Born on September 29, 1890, Professor Thomson was educated at Dulwich College and at the University of Birmingham, where he was Queen's Scholar, Ingleby Scholar, and Russell Prizeman. He graduated M.B., Ch.B. in 1915 with first-class honours in medicine, surgery, and midwifery. He served in the war of 1914–18, winning the M.C. and Croix de Guerre, and retiring with the rank of major. In 1920 he was elected a Member of the Royal College of Physicians of London and in 1930 he became a Fellow of the College. In 1923 he proceeded M.D. Professor Thomson is consulting physician to the Children's Hospital, the Ear and Throat Hospital, and the Eye Hospital, Birmingham, and physician to the United Hospitals, Birmingham. In 1949 he delivered the Lumleian Lectures, on "Problems of Ageing and Chronic Sickness," before the Royal College of Physicians of London. The lectures were published in the *British Medical Journal* of July 30 and August 6, 1949.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on February 16, the following appointments were made: *Honorary Demonstrator in Bacteriology*, Cynthia M. Scothorne, M.B., Ch.B. *Clinical Teacher in Child Health*, C. Cedric Harvey, M.D., F.R.C.S.Ed., M.R.C.P. *Clinical Teacher in Radiology*, Joseph Walter, B.M., B.Ch., M.R.C.P., D.M.R.E.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, DUBLIN

The following candidates have been approved at the examinations indicated:

M.D.—*General Medicine:* D. Collins, Mary M. Foley. *Mental and Nervous Diseases:* R. Vereker. *Pathology and Bacteriology:* A. E. P. Carragher, G. B. Doyle.

M.CH.—*General Surgery:* P. C. J. Carey. *Ophthalmology:* G. P. R. Crookes.

M.A.O.—E. M. O'Dwyer.

M.B., B.CH., B.A.O.—C. J. Burke, Mary C. Coghlan, Julia Connor, J. G. Cooney, Mary M. Dargan, L. S. Devane, Maire M. Glancy, J. K. Heagney, J. Hennigan, P. C. Hogan, A. T. Hughes, Joan M. Hughes, T. Hunt, Cecily Jennings, P. C. Kellaher, M. J. Lalor, J. D. Leahy, P. J. Loughery, D. McFadden, Deirdre M. F. MacHale, Beatrice M. MacKenzie, T. K. McKeogh, J. M. Mallon, M. F. Malone, Mary T. Meehan, P. J. Mulholland, J. Mulligan, O. P. M. Murray, M. O'Donnell, F. A. J. O'Reilly, C. M. J. O'Rorke, W. J. Payne, J. S. Plaisted, G. B. Plunkett, J. S. Powell, G. J. Robinson, A. T. Ryan, Florence M. Ryan, J. G. Smith, Margaret Y. Timoney, P. J. Wynne.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. R. Gauat, T. Lynch, D. L. Moody, T. M. Moylett, H. Prasad, Katharine P. Quane, A. L. G. Smith.

C.P.H.—V. Barry, Ita M. Briscoe, G. Cremer, J. Crowley, J. M. Daly, J. K. Doherty, H. C. Dolan, G. P. Donnelly, J. J. A. Fitzgerald, J. M. N. Flannery, M. C. Hayes, M. B. Holohan, P. F. Joyce, Maeve G. M. Keelan, D. P. Keenan, J. G. Kenny, M. P. Killeen, J. P. Laffan, D. M. Leahy, T. F. Leonard, Elizabeth Lucey, F. R. N. G. Lynch, Lucy M. Lynch, J. F. McCourt, T. A. McGivern, F. J. McKenna, R. Martin, E. J. Mitchell, M. A. Moore, Cynthia Nunan, M. J. O'Brien, P. F. O'Callaghan, P. M. P. O'Connor, M. O. O'Donovan, J. G. A. O'Flynn, D. J. O'Regan, T. V. Ryan, W. J. Savage, N. C. Smyth, P. J. Solan, A. MacA. Sullivan, P. D. Sullivan, P. J. Watters.

The Services

A *Supplement* to the *London Gazette* has announced the following awards:

Four Clasps to the Territorial Efficiency Decoration.—Colonel W. H. Kerr, T.D., R.A.M.C.

Three Clasps to the Territorial Efficiency Decoration.—Colonel J. F. Fraser, T.D., and Major G. D. Thompson, T.D., R.A.M.C.

First Clasp to the Territorial Efficiency Decoration.—Major W. A. Liston, M.C., T.D., R.A.M.C.

Territorial Efficiency Decoration and Two Clasps.—Lieutenant-Colonel D. S. Middleton, R.A.M.C.

Vital Statistics

Influenza

In England and Wales in the week ending February 10 there was a marked decrease in the influenza death rate in the great towns from 61.2 to 41.7 per million. Regionally, the numbers of deaths in the great towns declined in the East and West Ridings, North-western, North-midland, Midland, Eastern, London, and South-eastern Regions, and in Wales. There were less marked decreases in the remainder except the Northern Region, where there was an insignificant increase of 2 deaths. The proportion of influenza deaths in the age groups 55 and over rose to 91.5%. The epidemic seems to be waning throughout the country.

In London there was a continued and marked decline in the numbers of cases removed to hospital for pneumonia, influenza, and bronchitis, and also of deaths from pneumonia and influenza.

Influenza due to virus A prime is prevalent in certain parts of Canada. Strains from Turkey, Paris, and Italy have been found to be A prime. Cases in Yugoslavia have been due to virus B. The disease is also reported in Germany, but the virus type is not yet known.

Regional totals of influenza deaths in the great towns in the week ended February 10 and rates per million (in parentheses) were: Northern, 20 (16.13); East and West Ridings, 109 (47.03); North-western, 183 (50.66); North Midland, 60 (57.18); Midland 139 (60.52); Eastern, 47 (62.48); London and South-eastern, 176 (25.07); Southern, 23 (28.00); South-western, 63 (65.27); Wales, 44 (66.33); all great towns, 864 (41.66).

Influenza deaths in the great towns by age groups were: under 1, 7; 1–4, 2; 5–14, 1; 15–24, 2; 25–34, 7; 35–44, 13; 45–54, 41; 55–64, 118; 65–74, 286; 75 and over, 387; all ages, 864.

In the great towns the following cases of and deaths from pneumonia, and deaths from influenza, have been reported:

	23/12	30/12	6/1	13/1	20/1	27/1	3/2	10/2
Pneumonia:								
Cases ..	364	502	956	1,300	1,455	1,720	1,664	1,515
Deaths ..	351	383	770	982	843	790	830	662
Influenza:								
Deaths ..	54	102	458	890	1,099	1,239	1,269	864

Totals from the first week of the year in the great towns compared with the preceding two years are as follows:

	1949	1950	1951
Pneumonia:			
Cases	3,338	3,350	8,656
Deaths	2,094	1,869	4,882
Influenza:			
Deaths	327	326	5,815

The following Table shows notifications of pneumonia—primary and influenzal—in England and Wales:

	23/12	30/12	6/1	13/1	20/1	27/1	3/2	10/2
Pneumonia ..	647	962	1,774	2,538	3,047	5,572	3,513	3,091
Corresponding week, 1949–50	634	842	1,120	991	890	902	1,187	1,228

The deaths cannot be related to the cases in these Tables.

The following Table shows the great towns with the largest numbers of influenza and pneumonia deaths for the week ending February 10:

	Total Deaths	Deaths from (a) Influenza	Deaths from (b) Pneumonia	Deaths from (a) and (b)
Bradford	196	20	6	26
Leeds	231	22	25	47
Sheffield	260	26	18	44
Blackburn ..	73	11	9	20
Liverpool ..	281	18	40	58
Manchester ..	339	31	34	65
Stockport ..	92	13	7	20
Leicester	134	17	9	26
Nottingham ..	178	19	19	38
Birmingham ..	498	50	32	82
Stoke-on-Trent ..	132	24	6	30
Wolverhampton ..	94	16	7	23
Norwich	82	20	11	31
Greater London ..	2,956	208	230	438
Croydon	104	11	11	22
Bristol	238	31	30	61
Swansea	79	14	6	20
Edinburgh ..	159	6	11	17
Glasgow	364	10	21	31
Belfast	139	11	12	23
Dublin	223	23	8	31

Smallpox Confirmed

Smallpox has been confirmed in the case of the 12-year-old girl who arrived in the Port of London on February 12 after travelling from Bombay on the s.s. *Strathmore*—a report of which was given last week (February 17, p. 367). She had been vaccinated in infancy (two scars) and again before leaving India. The recent vaccination was unsuccessful.

The s.s. *Strathmore* called at Aden on January 30, Suez on February 2, Port Said on February 3, and Marseilles on February 7. Up to February 20 there were no further reports of smallpox or suspected smallpox among the passengers and crew.

Poliomyelitis

In the week ending February 10 notifications of poliomyelitis were as follows: paralytic, 12 (21); non-paralytic, 7 (11); total, 19 (32). Figures for the preceding week are in parentheses. The weekly total is the lowest since the week ending April 8, 1950.

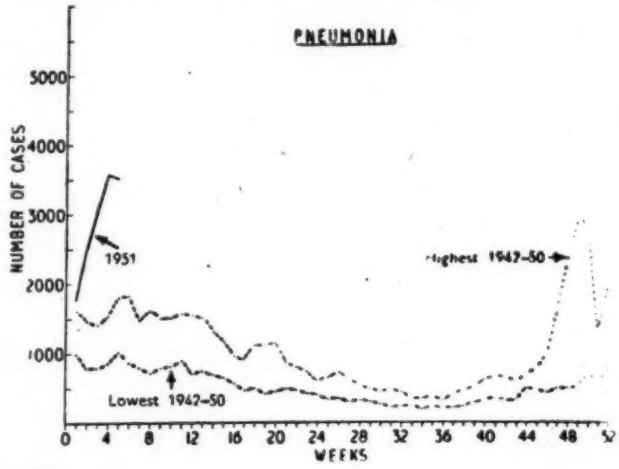
According to a report by Drs. W. H. Bradley and A. H. Gale (*Monthly Bulletin of the Ministry of Health*, November, 1950) pregnancy does not increase the risk of death from poliomyelitis. They also found that poliomyelitis may occur in hospital wards as a result of cross-infection, but is least frequent in infectious-diseases hospitals. They record some interesting cases of probable cross-infection both between patient and patient and between patient and nurse.

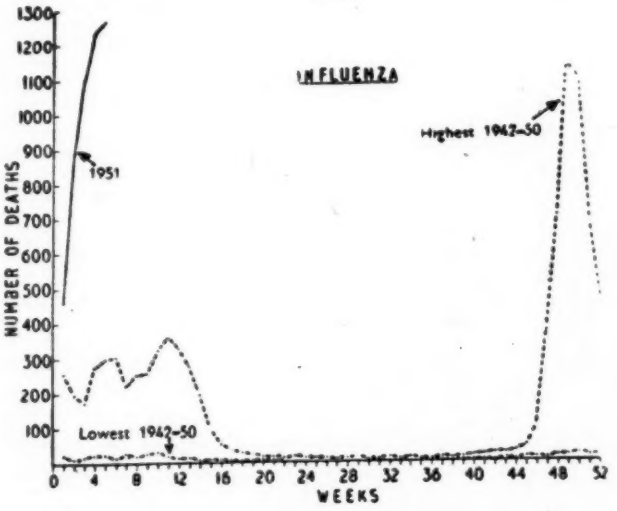
Infectious Diseases

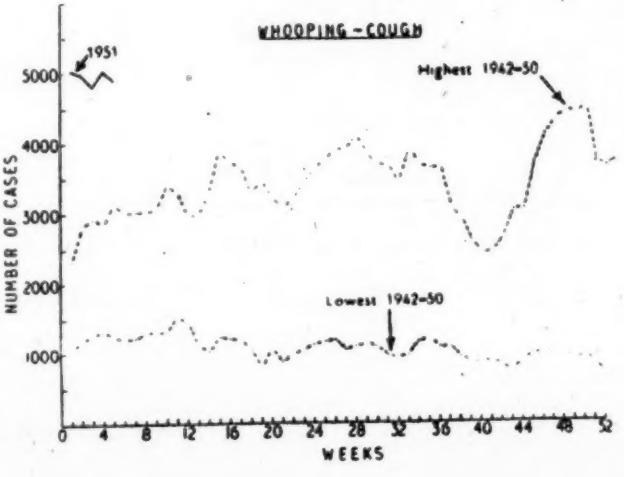
During the week ending February 3 the chief variations in the numbers of notifications of infectious diseases were increases in notifications of measles 391 and dysentery 261, and decreases in whooping-cough 107, scarlet fever 80, and acute pneumonia 59. The rise in the incidence of measles was contributed by London and the surrounding counties, while in the remainder of the country a fall occurred in most counties. The largest rises were Middlesex 174, London 158, Kent 134, Essex 118, Surrey 96, Hertfordshire 91, while the largest falls were Yorkshire West Riding 196, Lincolnshire 138, Lancashire 109, Yorkshire East Riding 107. The largest exceptions to the general decline in whooping-cough were rises in Lancashire 127 and Kent 58. The chief features of the returns for diphtheria were a decrease of 7 in Durham and a rise of 6 in Lancashire. The notifications of acute poliomyelitis were 5 more than in the preceding week; the largest return was Kent 8 (Orpington R.D. 6); the only other area with a multiple case was Cumberland, Windermere R.D. 2. The largest variations in the local trends of acute pneumonia were a decrease in Lancashire 129 and a rise in Yorkshire West Riding 78.

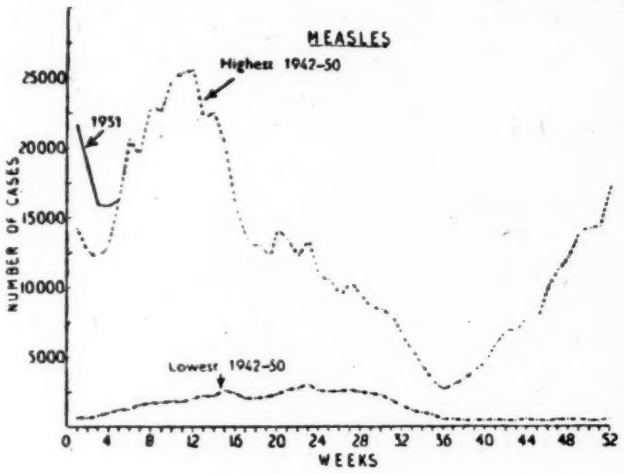
Graphs of Infectious Diseases

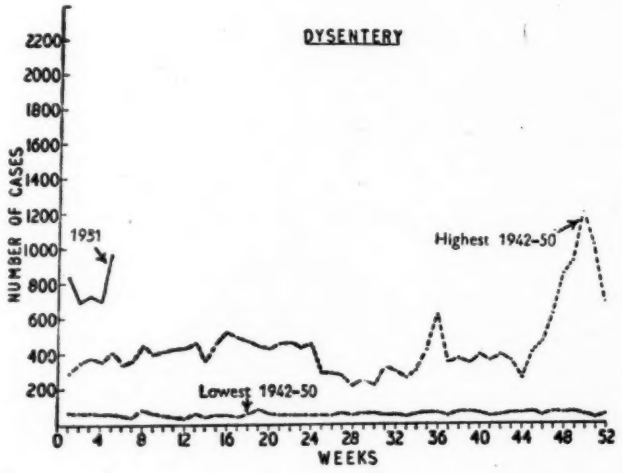
The graphs below show the uncorrected numbers of cases (deaths from influenza) of certain diseases notified weekly in England and Wales. Highest and lowest figures reported during the nine years 1942–50 are shown thus - - - - - -, the figures for 1951 thus ————. Except for the curves showing notifications in 1951, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.











Dysentery

During the week ending February 3 fresh outbreaks of dysentery were reported from Hertfordshire and Berkshire, and a large rise occurred in Middlesex. The largest returns were: Hertfordshire 174 (Hatfield R.D. 172); Lancashire 95 (Liverpool C.B. 27, Oldham C.B. 15); Middlesex 94 (Tottenham M.B. 30, Willesden M.B. 22, Ealing M.B. 21); London 62 (Islington 15); Yorkshire West Riding 55 (Saddleworth U.D. 18, Sheffield C.B. 13); Leicestershire 54 (Leicester C.B. 43); Essex 47 (Walthamstow M.B. 13); Suffolk 42 (Ipswich C.B. 32); Berkshire 40 (Maidenhead M.B. 40); Warwickshire 33 (Birmingham C.B. 24); Durham 24 (Stanley U.D. 11); Sussex 22 (Brighton C.B. 13); Staffordshire 21 (Lichfield R.D. 11); Cheshire 17 (Wallasey C.B. 9); Surrey 17; Yorkshire East Riding 14; Oxford 13 (Oxford C.B. 9); Dorset 12; Nottinghamshire 11; Gloucestershire 10.

Week Ending February 10

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 892, whooping-cough 5,110, diphtheria 44, measles 21,633, acute pneumonia 3,091, acute poliomyelitis 19, dysentery 985, paratyphoid fever 6, typhoid fever 5. In the great towns 864 deaths were attributed to influenza.

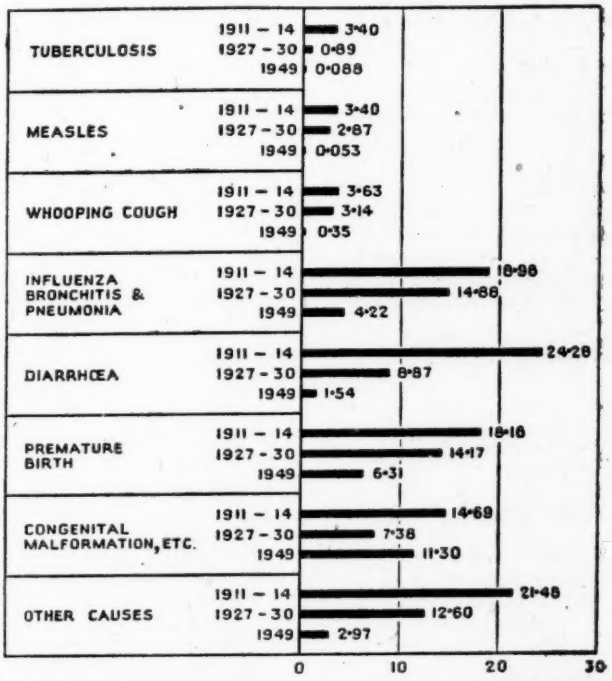
Quarterly Returns for Northern Ireland

The birth rate during the second quarter of 1950 was 22.5 per 1,000 of the population, and was 1.2 below the average rate for the five preceding second quarters. Infant mortality was 37 per 1,000 registered births, and was 1 below the rate for the June quarter of 1949 and 14 below the average for the corresponding quarters of the five preceding years. The general death rate was 11.4 per 1,000, and was 0.3 below the average rate for the second quarters of 1945–9. Ninety-four deaths were attributed to the principal infectious diseases, and included 61 from influenza, 17 from diarrhoea and enteritis, and 7 from whooping-cough. Deaths from pulmonary tuberculosis numbered 128, and 36 from other forms; these were 41 and 12, respectively, below the numbers recorded in the preceding second quarter.

London's Healthy Children

The following diagram from the 1949 report of the L.C.C. County Medical Officer of Health (Sir Allen Daley), which has recently been published, illustrates how infant mortality from various diseases has been declining in the last few decades. Deaths from congenital malformation, etc., have not shared in the general decline.

Infant Mortality per 1,000 Live Births



The report recently published of the Working Party appointed by the Minister of Labour and National Service to investigate the opportunities of employment for blind persons gives some interesting information on opportunities for blind men and women in physiotherapy. Witnesses who had experience of employing blind physiotherapists were unanimous on their high qualities and professional competence. In January, 1950, 69 blind physiotherapists were engaged in full-time hospital work; 113 in part-time hospital and private work; 105 in private practice; and 4 as teachers. The history of progress in this sphere begins with the instruction in massage given in Manchester in 1895 to selected pupils; the foundation of the London Institute of Massage for the Blind in 1900; and the taking over of the school by the National Institute for the Blind in 1915, which then began to prepare suitable blind students for the examinations of the Chartered Society of Physiotherapy. On obtaining a hospital appointment every blind physiotherapist is supplied by the National Institute with a galvanometer, audible as well as Braille-calibrated, a Braille hot-wire meter, and a pocket-size detector set and earphones for short-wave therapy.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles for the week ending Feb. 3 (No. 5).

Figures of notified *cases* are for: (*a*) England and Wales (London included). (*b*) London (administrative county). (*c*) Scotland. (*d*) Northern Ireland (*e*) Eire. Figures of *births and deaths* and of *deaths* recorded under each disease are for: (*a*) The 126 great towns in England and Wales (London included) (*b*) London (administrative county). (*c*) The 16 principal towns in Scotland. (*d*) The 10 principal towns in Northern Ireland. (*e*) The 13 principal towns in Eire. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, Northern Ireland, and Eire, the Ministry of Health and Local Government of Northern Ireland, and the Department of Health of Eire.

Disease	1951 Week Ending February 3					1950 Corresponding Week					1942–50 England & Wales Corresponding Week		
	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	Highest	Median	Lowest
Diphtheria	51	5	20	3	4	75	11	20	2	3	914	415	75
Deaths	—	—	—	—	—	2	—	—	—	—			
Dysentery	967	62	189	7	1	217	10	64	—	2	407	160	61
Deaths		—		—					—				
Encephalitis, acute	3	—	1	—	1	8	—	—	—	—	8	2	—
Deaths		—			—		—						
Erysipelas			27	4	6			23	7	11			
Food-poisoning	139	43		—		32	6		—				
Infective enteritis or diarrhoea under 2 years				13	9					20			
Deaths	11		—	1	2	20		7	2	1			
Measles*	16,321	2,368	161	28	100	3,530	42	62	260	74	16,039	5,596	1,162
Deaths		—	—	—	—			—	—	—			
Meningococcal infection	73	6	18	4	3	33	3	20	2	2	183	71	32
Deaths		—	—				—	—					
Ophthalmia neonatorum	36	—	8	—		22	4	9	1	—	88	63	22
Pneumonia, influenzal	3,513	167	99	104	132	1,187	70	31	25	—	1,794	1,278	1,012
Deaths (from influenza)†	1,269	142	54	19	73	61	7	9	1	—			
Pneumonia, primary			367					328					
Deaths	830	116		32	29	354	51		14	16			
Poliomyelitis, acute:													
Paralytic	21	—	3	—	1	38	5	2	1	6	38	10	5
Non-paralytic	11	2											
Deaths§	2	—			—	9	1			2			
Puerperal fever			2				—	4					
Puerperal pyrexia‖	87	8	7	2		66	1	3	2	—	185	130	66
Scarlet fever	875	65	149	35	39	1,924	107	213	166	91	2,116	1,401	1,112
Deaths		—	—	—	—			—	—	—			
Smallpox	—	—	—	—		—	—	—	—	—			
Deaths				—					—	—			
(1) Tuberculosis, respiratory			200	23				180	48				
(2) Tuberculosis, non-respiratory			30	5				30	5				
(1) Deaths	246	36	32	2	14	270	42	44	4	15			
(2) Deaths		3	5	—	1		2	10	1	1			
Typhoid fever	3	—	1	—	1	5	—	—	—	—			
Deaths¶	—	—	—	—		—	—	—	—	—			
Paratyphoid fever	3	—	—	—		3	—	—	—	—	28	10	6
Whooping-cough	4,916	428	685	22	90	1,588	52	320	71	52	3,168	1,698	1,252
Deaths	9	1	3	—	2	3	—	2	1	1			
Deaths (0–1 year)	270	33	35	8	20	385	41	38	13	20	609	438	303
Deaths (excluding stillbirths)	10,141	1,568	926	185	444	7,001	1,080	800	156	250	8,059	5,957	4,981
Annual death rate (per 1,000 persons living)			18·6					16·1					
Live births	6,892	1,095	919	253	384	6,948	1,106	892	206	337	9,675	6,948	5,324
Annual rate per 1,000 persons living			18·5					17·9					
Stillbirths	177	22	27			207	28	30			245	214	195
Rate per 1,000 total births (including stillborn)			29					33					

* Measles not notifiable in Scotland and returns are approximate. † Includes primary form for England and Wales, London and N. Ireland. § The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, and London (administrative county), are combined. ‖ Includes puerperal fever for England and Wales and for Eire. ¶ Deaths from paratyphoid fever are combined with those from typhoid fever.

Medical News

Reprints of our Leading Articles and Annotations

We have received many requests from medical men and women for reprints of leading articles and annotations from the *Journal*. Inquirers have expressed the wish to circulate these to their staff and classes and also to add to their own files. We shall be pleased to make available for sale a limited number of leading articles and annotations. Inquiries should be addressed to the Publishing Manager, *British Medical Journal*, B.M.A. House, Tavistock Square, London, W.C.1.

History of Medicine at Yale University

Dr. John F. Fulton has retired from the Chair of Physiology at Yale University as from February 1 to accept a new appointment, also at Yale, as Sterling Professor of the History of Medicine. He will develop a small university department in the historical division of the Yale Medical Library, and will hold an honorary appointment in his old department and continue with certain phases of physiological research.

Scottish Society of the History of Medicine

The tenth meeting was held on February 12 in the Hall of the Royal Faculty of Physicians and Surgeons of Glasgow, Professor G. B. Fleming, vice-president, in the chair. Professor W. J. Brownlow Riddell read a paper on John Reissberg Wolfe, a prominent ophthalmic surgeon in Glasgow during the last fifty years of the nineteenth century. Wolfe, born in Breslau, was a medical graduate of Glasgow, and, after campaigning with Garibaldi in 1859, returned to Scotland, first practising at Montrose and Aberdeen before settling down in Glasgow. He founded the Ophthalmic Institution there and in 1886 became Professor of Ophthalmology at St. Mungo's College. He described a method of skin-grafting and was a pioneer in corneal grafts—in fact he was one of the first to perform this operation in Britain. Mr. A. L. Goodall also contributed a short communication on Dr. Peter Lowe, founder of the Royal Faculty.

Easier Currency for Treatment Abroad

Foreign currency is henceforth available without difficulty to people genuinely ill and wanting to go abroad to get treatment in Austria, Belgium, France, Greece, Italy, Liechtenstein, Luxembourg, the Netherlands, Portugal (including Madeira and the Azores), Spain (including the Canary Islands), Switzerland, Turkey, and the Western Zones of Germany. This is irrespective of whether treatment can be obtained in the sterling area; and chronic ill-health, where associated for instance with a particular climate, will also be considered for the currency permit. The procedure for getting this permit remains the same: the patient's doctor sends a statement of the medical condition together with his recommendation for treatment abroad to the Medical Secretary, Exchange Control Medical Advisory Committee, Tavistock House North, Tavistock Square, London, W.C.1. For Denmark, Norway, and Sweden permits are no longer required, and foreign exchange can be obtained direct from a bank.

Egg-shaped Operating Theatre

The February issue of *Building* describes six egg-shaped operating theatres designed by Paul Nelson and now being built at the Mémorial France-Etats-Unis Hospital at St. Lô, in Normandy. In each the table is mounted on a fixed pedestal—on which it can be rotated and tilted in any direction—placed towards the more pointed end of the egg, while all doors open at the broad end so that comings and goings for equipment and messages do not disturb the operating circle. Being without any corners, the theatre is easy to keep clean, and the light water-green ceiling, which is dotted with 71 carefully placed electric lamps, reflects about 60% of the light on it. A special switchboard chooses which series of lights shall be on for any particular operation. The granite floor is a darker green which reflects less light, and is divided by copper joints into squares which are earthed to avoid all electrostatic discharges and therefore anaesthetic explosions. All the surgeon's controls for suction, diathermy, compressed air, and so on are placed in the pedestal of the table so that there are no wires and tubes trailing across the floor. It is said that the particular shape of the theatre permits a more efficient filtering, sterilizing, and conditioning of the air.

Joint Tuberculosis Council

The Joint Tuberculosis Council, now in the twenty-seventh year of its existence, renewed on February 17 its custom of holding an annual luncheon. It celebrated this by asking a number of guests, among whom were Sir Wilson Jameson, Sir Allen Daley, and Sir George Elliston. There were also representatives of the Ministry of Health, Ministry of Labour, Ministry of Pensions, and Ministry of National Insurance, as well as representatives of the medical press. The principal medical officer of the Ministry of Health, Sir John Charles, proposed the health of the Council in an amusing speech, in which he gracefully skirted round possible controversial issues. In reply, this year's chairman of the Joint Tuberculosis Council, Dr. Peter Edwards, showed that the Council was very much alive to its responsibilities and active in the advice it was prepared to give on all aspects of tuberculosis. Sir Robert Young, the doyen of chest physicians in this country, charmingly flattered those guests who were present, and the response on their behalf was made by Dr. Hugh Clegg.

The Hunterian Society

The Annual Dinner of the Hunterian Society, held at Claridges Hotel on February 15, was a remarkably successful occasion, and a large number of members with their wives and guests were present. Unfortunately illness prevented this year's president of the society, Sir Arthur Porritt, from attending, but the retiring president, Mr. Mortimer Woolf, nobly filled the gap. The health of the society was proposed by Viscount Hailsham in a vigorous and lively speech, in which he gave his views on the position of the professions in society. After Mr. Woolf had responded, Dr. Arthur Westerman, himself a member of the Court of Common Council of the City of London, proposed the toast "The Lord Mayor and Corporation of the City of London." In his speech he gave a most interesting account of the customs and practices which have made the position of the Lord Mayor of London unique. He observed, too, that the Lord Mayor put the Mansion House at the disposal of the Hunterian Society for its meetings in the City. The Lord Mayor, Mr. Alderman Denys Lowson, responded in a short and delightful speech. Mr. Reginald Murley, proposing the health of the guests, gave an amusing account of their virtues and failings. Professor Hilda Lloyd and Mr. John Eastwood, K.C., replied.

Exchange Visits with Canada and the U.S.A.

As already announced (*Supplement*, January 13, p. 12) the Bank of England has approved an exchange scheme submitted by the B.M.A. by which doctors from Britain may obtain the equivalent of up to £200 in dollars for visits to Canada and/or the U.S.A. Full details of the scheme can be obtained from the Secretary of the Association. The closing date for applications has been extended to April 1.

Liverpool Medical Institution

At a meeting on Thursday, January 18, Mr. John A. Shepherd read a paper on "Inguinal Hernia," and discussed the proportion of recurrences which come to all surgeons. He said revision of anatomical ideas was necessary in studying the inguinal canal: functional anatomy rather than static textbook anatomy was required. The action of the structures of the inguinal region could be shown at operation by stimulating the muscles with faradism, and he showed a colour film to illustrate this and certain technical operative matters. Professor C. A. Wells, Mr. A. M. Abrahams, and Mr. R. Brearley contributed to the discussion.

Wills

Dr. James Maude Rishworth, for a number of years in general practice at Blackheath, and consulting physician attached to the London Homoeopathic Hospital, left £16,715. Dr. Harold John Vane Sutton left £22,820. Dr. Ernest Solly, former surgeon to the Harrogate Hospital and honorary surgeon to the Yorkshire Home for Incurables and Chronic Diseases, left £25,245. Mr. Frederick Henry Dodd, a well-known child psychologist and medical officer, Dr. Barnardo's Homes, Blackheath, left £17,347. Dr. James Carruthers Young, a distinguished psychiatrist and a former chairman of the Medical Society for Individual Psychology, left £1,548. Dr. Frank Lewarne left £14,494. Dr. Henry Faithful Smith left £19,420. Dr. Joseph Peter Lowe, of Congleton, Cheshire, left £18,071. Mr. Ernest Tom Neathercoat, chairman of Savory and Moore, Ltd., Artificial Limbmakers, Ltd., Lawrence Press, Ltd., and other companies, formerly president of the Pharmaceutical Society of Great Britain, a governor of St. Bartholomew's Hospital, chairman of the Prince of Wales Hospital, chairman of Weybridge U.D. Council, 1914–20, past master of the Farriers Company, and a liveryman of the Patternmakers and the Needlemakers, left £163,967, of which one-eighth is to be distributed equally between Dr. Barnardo's Homes, King Edward's Hospital Fund for London, Royal National Life Boat Institution, St. Dunstan's, and the Royal College of Veterinary Surgeons.

COMING EVENTS

South Wales Medical Ex-Service Association

The annual reunion dinner will be held on Saturday, March 3, at 7 for 7.45 p.m. at the Park Hotel, Cardiff, with Colonel D. P. Holmes, T.D., in the chair. Tickets, 12s. 6d. each, may be obtained from the honorary secretary, Mr. C. W. D. Lewis, Surgical Unit, Royal Infirmary, Cardiff.

Guy's Hospital Dental School

The annual clinical meeting of Guy's Hospital Dental School will be held in the Dental Department of the hospital on Saturday, March 3, when, during the morning and afternoon, demonstrations of modern dental procedures will be given by members of the staff. Visitors wishing to see the work of the Dental School should call at the Medical School office at 11.30 a.m.

Oliver-Sharpey Lectures

Professor K. J. Franklin will deliver the Oliver-Sharpey Lectures before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday and Thursday, March 13 and 15, at 5 p.m. His subject is, "Aspects of the Circulation's Economy."

Laboratory Animals Bureau

The annual congress will be held this year at the University of Liverpool on Monday and Tuesday April 9 and 10. Admission to the morning sessions is for invited technicians only, and invitations and further information can be obtained from the Director, Laboratory Animals Bureau, Medical Research Council Laboratories, Holly Hill, Hampstead, London, N.W.3 (Telephone: Hampstead 2232).

Central Council for Health Education

A summer school consisting mainly of discussion groups on health education principles and techniques will be held this year at King Alfred's College, Winchester, from August 22 to September 1. The inclusive fee for students will be 13 guineas, and further information can be obtained from the medical adviser and secretary, Tavistock House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Monday

HUNTERIAN SOCIETY.—At the Mansion House, London, E.C., February 26, 8.30 p.m., *"The Man John Hunter Rejected"*; *"The Man John Hunter Selected"*; *"Retrospect and Prospect,"* Hunterian Oration by Mr. W. E. Tanner.

●INSTITUTE OF CHILD HEALTH, Hospital for Sick Children, Great Ormond Street, London, W.C.—February 26, 5 p.m., *"The Prevention of Accidents in Childhood,"* by Dr. C. A. Boucher.

INSTITUTE OF OPHTHALMOLOGY, Judd Street, London, W.C.—February 26, 5.30 p.m., *"The Clinical Picture of the Normal and Abnormal Macular Region,"* by Mr. R. C. Davenport.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., February 26, 5.30 p.m., *"Folic Acid and Growth of Tumours, Especially Rous Sarcoma,"* Special University Lecture in Pathology by Professor J. Engelbreth-Holm.

UNIVERSITY COLLEGE, Physiology Theatre, Gower Street, London, W.C.—February 26, 4.45 p.m., *"Separation Methods in Biochemistry,"* by Dr. C. J. O. R. Morris.

Tuesday

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., February 27, 5.30 p.m., *"Tissue Reactions to Protein Sensitization,"* by Professor J. R. Squire.

INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, London, W.C.—February 27, 5 p.m., *"Chemical Changes in Nerve Cells With Respect to Function and Age,"* by Professor Holger Hyden (Göteborg).

UNIVERSITY COLLEGE (Physiology Theatre), Gower Street, London, W.C.—February 27, 5.15 p.m., *"Observations on the Mechanism of Action of the Digitalis Glycosides on Cardiac Muscle,"* by Dr. McKeen Cattell (Cornell University Medical College).

Wednesday

GLASGOW UNIVERSITY.—At Chemistry Department Lecture Theatre, University of Glasgow, February 28, 4.30 p.m., *"Nutritional Factors in Liver Disease."* First Noah Morris Memorial Lecture by Dr. H. P. Himsworth (Secretary, Medical Research Council).

INSTITUTE OF OPHTHALMOLOGY, Judd Street, London, W.C.—February 28, 5.30 p.m., *"New Vessel Formation in the Retina,"* by Dr. Norman Ashton.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—February 28, 8.30 p.m., *"The Influence of Radiology on the Diagnosis of Abdominal Disease,"* second Lettsomian Lecture by Dr. S. Cochrane Shanks.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—February 28, 5 p.m., *"Factors Influencing Functional Recovery of Peripheral Nerve Injuries in Men,"* Hunterian Lecture by Professor Ruth E. M. Bowden.

Thursday

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., March 1, 5.30 p.m., *"The Congenital Malformations,"* by Professor T. McKeown.

FACULTY OF HOMOEOPATHY.—At Royal London Homoeopathic Hospital, Great Ormond Street, London, W.C., March 1, 5 p.m., *"Facts and Ideas Regarding the Basic Principles of the Manipulative Treatment of Joints,"* by Dr. E. F. Rabey. Discussion to be opened by Mr. W. E. Tucker.

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—March 1, 5 p.m., *"Eruptions of the Hands,"* by Dr. S. C. Gold.

LIVERPOOL MEDICAL INSTITUTION, 114, Mount Pleasant, Liverpool.—March 1, 8 p.m., *"Diagnostic Errors in Tumour Cases,"* by Professor R. A. Willis.

ST. ANDREWS UNIVERSITY.—At Lecture Theatre, Materia Medica Department, Medical School, Small's Wynd, Dundee, March 1, 5 p.m., *"Nutritional Factors and Liver Injury,"* by Professor H. P. Himsworth.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—March 1, 4.30 p.m., lecture-demonstration on neurology.

UNIVERSITY COLLEGE (Anatomy Theatre), Gower Street, London, W.C.—March 1, 1.15 p.m., *"Counting Heads—The Taking of the Census 1801–1951,"* by Mr. A. J. Taylor.

WREXHAM AND DISTRICT CLINICAL SOCIETY.—At Wynnstay Arms Hotel, Wrexham, March 1, 7.30 p.m., *"Trends in Medical Thought,"* by Dr. William Phillips.

WYE COLLEGE, Swanley Hall, Ashford, Kent.—March 1, 8.15 p.m., *"Monkeys and Agriculture,"* by Professor S. Zuckerman, M.D., F.R.S.

Friday

INSTITUTE OF OPHTHALMOLOGY, Judd Street, London, W.C.—March 2, 5.30 p.m., *"Dystrophies of the Choroid,"* by Professor A. Sorsby.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—March 2, 8 p.m., *"The Standardization of Medicine,"* dissertation by Mr. D. W. Orton.

APPOINTMENTS

ADAMS, A. V., M.B., B.Chir., Resident Medical Officer, Ipswich Borough General Hospital, East Anglian Regional Hospital Board.

BEYNON, D. W., M.B., M.R.C.P., D.C.H., Consultant Paediatrician, Bournemouth and East Dorset, West Dorset and Salisbury Hospital Groups.

DICKINSON, K. SHALLCROSS, M.R.C.S., L.R.C.P., Medical Referee (Part-time), Ministry of Health.

HALL, THOMAS S., M.B.E., T.D., M.D., D.P.H., D.Obst.R.C.O.G., Deputy County Medical Officer, Lancashire County Council.

LIVERPOOL REGIONAL HOSPITAL BOARD.—The following senior medical staff appointments at the hospitals indicated in parentheses are announced: *Consultant General Surgeon*, J. A. Shepherd, M.D., Ch.M., F.R.C.S.Ed. (Broadgreen Hospital); *Consultant Ophthalmic Surgeon*, T. J. Phillips, M.R.C.S., L.R.C.P. (St. Helens Hospital and Newton-le-Willows Hospital); *Consultant Pathologist*, D. A. Stanley, M.D. (Bootle General and Waterloo and District Hospitals).

PIZEY, N. C. D., M.B., B.S., F.R.C.S., House-surgeon (Senior House Officer Grade), Hospital for Sick Children, Great Ormond Street, London, W.C.

TYNER, R. M. C., M.B., Ch.B., D.P.H., Assistant Medical Officer of Health and Assistant School Medical Officer, County Borough of Birkenhead.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Freeth.—On February 7, 1951, at the Central Middlesex Hospital, to Joan, wife of Derek Freeth, M.D., M.R.C.O.G., a son.

Gough.—On February 5, 1951, at Longmead, Spade Oak Reach, Bourne End, to Clara Lee (formerly Burgess), M.B., Ch.B., wife of Dr. C. W. C. Gough, a daughter.

MARRIAGE

Thomas—Doyle.—On February 17, 1951, at Harvard College Chapel, Cambridge, U.S.A., Vernon Thomas, D.A., to Barbara Doyle, S.R.N.

DEATHS

Black.—On February 14, 1951, at Narachan, Port Seton, East Lothian, John Black, M.B., Ch.B.

Brayne.—On February 2, 1951, William Frederick Brayne, M.B., Ch.B., Lieutenant-Colonel, I.M.S., retired, Kaisugu, Kericho, Kenya.

Brown.—On February 14, 1951, at 13, Apsley House, London, N.W., Henry Robert Brown, O.B.E., L.R.C.P.&S.Ed., L.R.F.P.S., Lieutenant-Colonel, I.M.S., retired.

Buckley.—On February 13, 1951, at The White Cottage, Main Road, Onchan, Isle of Man, Charles Herbert Buckley, M.R.C.S., L.R.C.P., aged 85.

Coghill.—On February 14, 1951, in London, Violet Alice Penrose Coghill, M.B., Ch.B., aged 83.

Dobson.—On February 14, 1951, at The Lindens, Sully, Penarth, Arthur Dobson, M.R.C.S., L.R.C.P., aged 80.

Gallelly.—On February 10, 1951, at Southbourne, Bournemouth, Edward Lewis Gallelly, M.B., Ch.B.

Hart.—On February 10, 1951, at 15, Primrose Hill, Northampton, Maurice Roberts Wilson Hart, M.B.E., M.R.C.S., L.R.C.P., M.R.C.O.G.

Holst.—On February 12, 1951, at Farnham, Surrey, Otto Leonard Holst, M.R.C.S., L.R.C.P., aged 85.

Lockwood.—On February 13, 1951, at Worthing, Dora Elizabeth Lockwood, L.R.C.P.&S.Ed., L.R.F.P.S., formerly of Zenana Mission Hospital, Bangalore, aged 88.

Macleod.—On February 15, 1951, at Dundee, Peter John Macleod, O.B.E., M.B., Ch.B., formerly of Stornoway, Isle of Lewis.

Mainprise.—On February 16, 1951 at the Cambridge Military Hospital, Aldershot, Cecil Wilmot Mainprise, D.S.O., M.R.C.S., L.R.C.P., Major-General, late R.A.M.C., retired, of Landfall, Fleet, Hants, aged 77.

Munro.—On February 16, 1951, at his home, Macdonald Somerled Munro, M.B., Ch.B., 2, Holcombe Road, Ilford, Essex.

Rainsbury.—On January 3, 1951, at Kilcrenagh, Stanton Hill, Mansfield, Notts, William Cornelius Rainsbury, M.D., aged 84.

Selby.—On February 15, 1951, at Cheadle Hulme, Cheshire, John Alexander Robertson Selby, M.B., Ch.B., formerly of Fort William and Hong Kong.

Stewart.—On February 14, 1951, at Edinburgh, Norman Burgess Stewart, senior, M.B., Ch.B., 30, Polwarth Terrace, Edinburgh.

Webb.—On February 14, 1951, at 36, High Brow, Harborne, Birmingham, Martha Beatrice Webb, M.D.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Tuberculin Reaction and Antihistaminics

Q.—*What effect have antihistamine drugs on the tuberculin reaction?*

A.—It appears to be true that the tuberculin reaction is very much diminished by taking antihistamine drugs. Breton (*C. R. Soc. Biol., Paris*, 1943, **137**, 254) first described a diminished reaction in patients given "antergan." Judd and Henderson (*Ann. Allergy*, 1949, **7**, 306) observed that the Mantoux test became negative in 18 out of 30 patients during prolonged treatment with antihistamine drugs, and then became positive again after stopping the treatment.

Graub and Barrist (*Amer. Rev. Tuberc.*, 1950, **61**, 735) tested 87 patients who gave a positive reaction 48 hours after intracutaneous injection of 0.1 ml. P.P.D. No. 1. A week later 50 mg. "benadryl" was given every 4 hours and another injection of P.P.D. on the second day of this treatment. In 63 patients the area of induration was diminished by more than 25 sq. mm.; in 5 patients the area was enlarged by more than this amount; and in 19 patients there was no appreciable change.

Disinfection of the Bedroom of a Phthisical Patient

Q.—*How may a bedroom be rendered safe for other occupants after it has been used for a long time by a person with open pulmonary tuberculosis?*

A.—All disinfection of rooms used by infectious persons must be founded on knowledge of the organism concerned. The tubercle bacillus can live outside the body in damp dark places for varying periods up to four weeks, but it succumbs to sunlight, heat, and surface disinfectants quite quickly. It is therefore advised that a room that has been used by an infectious tuberculous person should be thoroughly "spring cleaned" with plenty of soap and water. The floor should be scrubbed, the furniture and walls damp-dusted with disinfectant—for example, 1/80 carbolic acid—but, most important of all, the room should be well ventilated and exposed to as much sunlight as possible for four days before being used by another person. The patient's sheets should be boiled and the blankets and mattress steam-disinfected. If this is not possible they should be exposed to sunlight for four days. Clothing should be similarly treated by washing or thorough exposure to air and sunshine. The sealing of the room and burning sulphur candles or subjecting to formalin vapour, although a further safeguard, is not necessary if the room has been thoroughly washed, damp-dusted and well ventilated for at least four days, and the patient's clothing and bedding specially treated, for it is in the latter that the main risk of infection lies.

Sputum Mugs

Q.—*What is the best method of disposing of sputum in a sanatorium? Are destructible sputum cartons preferable to sputum mugs?*

A.—The waxed paper carton is undoubtedly the best method of collecting sputum in a sanatorium. The carton can be lodged in a small metal frame with a handle for the convenience of the patient and used like an ordinary sputum cup. The cartons are removed from the handles and carried on metal trays to the incinerator. Trays and handles are easily sterilized. Small waxed-paper tubs are

also the best containers for conveying sputum specimens from the ward to the laboratory. These are burnt after use, and this eliminates the risk of false positives from contaminated containers.

The use of sputum mugs entails the purchase of expensive apparatus for cleaning and sterilization, and, even with the greatest care, those engaged in this work run some risk of infection.

Whooping-cough Vaccines

Q.—*What is the present status of whooping-cough immunization? I hear that the percentage of palsies following such inoculations is high. If this is not so, what is the best of the vaccines available?*

A.—The controlled trials of pertussis vaccines carried out during the past few years under the sponsorship of a Medical Research Council committee have shown that with the British and American vaccines that were used a considerable degree of protection against whooping-cough was obtained; but the protection given by one particular vaccine was considerably greater than was given by the others. Efforts are now being made to improve the antigenic quality of commercially prepared vaccines in this country, although it is still probably premature to recommend the large-scale use of these vaccines until further details about the Medical Research Council's whooping-cough trials are available.

The risk of post-inoculation poliomyelitis with plain (not alum-precipitated) pertussis vaccine is slight, particularly if intramuscular injection is avoided. The use of combined diphtheria toxoid and pertussis vaccine has, however, occasionally been followed by poliomyelitis in the inoculated limb, and this type of combined vaccine should not be used in any area at a time when cases of poliomyelitis are occurring.

How to Prescribe Chloramphenicol

Q.—*What dosages of chloramphenicol are recommended for (a) babies, (b) children, and (c) adults? How is it best prescribed?*

A.—An average adult daily dose of chloramphenicol for a severe acute infection is 4 g.: less than this may suffice for less serious conditions. As with other antibiotics, the dose should not be reduced in direct proportion to body-weight for children: a young infant may be given 750 mg. daily. Appropriate doses for intermediate ages can be calculated from these two figures.

For those who can swallow them it is prescribed in 250-mg. capsules, the requisite number of which are taken three or four times a day. For infants and young children who cannot do so, the contained powder, which is exceedingly bitter, should be disguised with sweetening and flavouring agents.

Standard Stretchers

Q.—*To what extent have the dimensions of stretchers and their tracks in ambulances been standardized?*

A.—The position in this country is that there is a British Standard No. 896 : 1949 (obtainable from the British Standards Institution, 24–28, Victoria Street, London, S.W.1, price 1s. 6d.) which sets out the principal dimensions of stretchers and stretcher-carriers in ambulances to ensure interchangeability. The standard also specifies the essential dimensions for hospital trolleys intended to take stretchers. Both Service and civil authorities co-operated in the preparation of this standard, and the requirements specified agree with the dimensions given in the manual of the International Red Cross. The dimensions of stretcher carriers have been designed to accommodate all the types of stretchers now in use in this country, but it has been agreed that all future stretchers should have runners or wheels conforming to the dimensions given in the standard.

This British Standard No. 896 has now been proposed as the basis for international standardization, and, although it cannot at present be said that it will be accepted without any modification, the indications are that it is generally acceptable. It was first published in 1940 as a War Emergency Standard and has been revised to take into account the post-war views of the Service and civil authorities.

The present view of the authorities concerned is that all ambulances should accommodate standard 7 ft. 6 in. (2.29 m.) stretchers. This fundamental requirement need not interfere with the use of non-standard 6 ft. (1.83 m.) stretchers to meet special needs, since the shorter stretcher can still be carried in ambulances designed to take the standard stretcher. The stretchers should be held in position by straps riveted to the stretcher carriers instead of by special locking devices which are not universally applicable.

Cortisone and Disseminated Sclerosis

Q.—*Is there any evidence to suggest that cortisone may be of use in the treatment of disseminated sclerosis?*

A.—No large series of cases of disseminated sclerosis treated with cortisone has been reported so far. Isolated cases have been reported often, particularly from America, and in all the results have been uniformly negative, in spite of very large doses of cortisone having been given on some occasions.

Spasm of the Nipples

Q.—*A woman of 39, in the seventh month of her first pregnancy, has been greatly troubled at intervals by very sore nipples ever since the pregnancy began. The nipples become periodically cyanosed around the base, with a white, dead appearance at the tip. The condition has proved resistant to local applications; it is worst at night and prevents sleep.*

A.—Some tenderness and soreness of the nipples is so common in pregnancy as to be regarded as normal. When it is exaggerated there is sometimes a background of over-anxiety and introspection. When pain comes in severe attacks it appears to be related to angiospasm with intermittent blanching and engorgement of the nipple, and co-incident erection. I know of one case in which regular inunction of the nipple with an oestrogen ointment seemed to help, but, ordinarily, local applications, and hormones and drugs administered systemically, are of little value. Indeed, over-enthusiasm in the preparation of the nipple for breast-feeding may lie at the root of some cases. The patient should be warned against this and advised to wear a well-fitting brassière constantly. Warm underclothing is important, because cold—even the immersion of the hand in cold water—can precipitate an attack. As pregnancy advances the breasts as a rule become more comfortable.

Pseudo-hypertrophic Muscular Dystrophy

Q.—*What is the latest treatment for pseudo-hypertrophic muscular dystrophy?*

A.—There has been no spectacular advance in the treatment of pseudo-hypertrophic muscular dystrophy in recent years. The most commonly used remedy is glycine in doses up to 10 g. daily. Vitamin E has also been tried, but is of no established value. It is at present impossible to treat the cause, the disease being a hereditary one.

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